

COMPUTER WORK

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NEWSPAPER



Win 'Tool' — Help School

Modular Computer Systems, whose booth is shown here at the New York Caravan, will give away a \$10,000 Modcomp 11/20 computer at the end of the Computerworld Caravan. The contest is based on the best estimate of trading volume on the New York Stock Exchange on a given day and the winner picks a college to receive the computer. More coverage of the New York Caravan on Pages 5 and 6.

On Photo by V. J. Farmer

6,250 Byte/In. Density IBM 3420 Storage More Than Tripled

By a CW Staff Writer

WHITE PLAINS, N.Y. IBM added three new models to its 3420 magnetic tape system that can record data at the "densest recording capability yet offered," according to the company.

Using a new method called Group Code Recording (GCR), the IBM drives can handle tapes containing a density of 6,250 byte/in. compared with 1,600 byte/in. on earlier models of the 3420. The drives can be used with 370s ranging from the 135 to the 195.

An upgraded control unit was also announced — the 3803 Model 2 — which operates with both the earlier and latest 3420 tape units. The Model 2 includes the capability of correcting errors in one or two tracks "simultaneously while the tape is in motion," IBM said.

Data can be transferred to the CPU at speeds up to 1.25 Mbyte/sec. compared with 320 kbyte/sec. on earlier models of the 3420. Read/write access time on the new drives is about 1 msec, which is described as twice the speed of earlier models.

Data Segmented

The GCR method segments data written on tape into groups of characters to which a special coding character is added. And the higher density is based on a combination of a modified coding scheme, a smaller interrecord gap (called an interblock gap) and modified electronic and electromechanical components, IBM said.

Installed 3803/3420 tape systems can be converted to the higher densities in the field. Higher-speed systems can be equipped to handle both existing and higher densities so users can convert their (Continued on Page 2)

Court Faults IBM on Index, But Rejects Reconstruction

By E. Drake Lundell Jr.

NEW YORK — IBM and its lawyers were sharply reprimanded by a federal district court judge here last week for their role in the destruction of the index or computerized data base compiled in the IBM/Control Data antitrust case.

Chief Judge David N. Edelstein, who is hearing the government's antitrust suit against IBM, ruled that IBM had violated a pretrial order he had issued March 16, 1972, "in that it procured the destruction of a data base created by attorneys for Control Data Corp."

Furthermore, Edelstein, who is the chief judge of the U.S. District Court for the Southern District of New York, ordered IBM "to provide promptly to the court copies of any or all materials in its possession or control needed or useful in the reconstruction or restoration of such a data base."

He further ordered IBM to "produce immediately to the court any elements of the CDC data base in its possession or control that it did not cause to be destroyed."

The judge, however, rejected "at this time" the Justice Department request that IBM be forced to either reconstruct the data base or pay Justice to reconstruct the files.

He did, however, dismiss this part of the Justice request "without prejudice," which means that it can be brought up

again at a later date by the Justice Department.

The Justice Department charge that under the settlement IBM had procured the data base destruction had been characterized by IBM attorneys as "inflammatory."

Edelstein noted that pretrial order number (Continued on Page 2)

One Society Expelled Foundation Ills Continue

By Alan Taylor

Special to Computerworld

CHICAGO — The Computer Foundation, scheduled to take over the certification of data processors in July, was thrust forward an open power struggle in which the Data Processing Management Association and the Association for Computing Machinery squared off against other participating societies, as the two controlling organizations moved to consolidate the powers of their self-appointed cochairmen.

At a meeting here, DPMA's John Sweetman, acting cochairman, first reviewed one of the decisions of the organizing committee, then he expelled one organization, Quality Data Processing (QDP), from committee membership. QDP cofounder R.C. Stewart told Computerworld he was protesting the attempt to expel QDP, being quite certain that Sweetman did not have this power. ACM later moved to drop the original idea of equal control of the foundation by the various societies.

Originally Accepted

QDP had attended the first meeting of the organizing committee, and had been accepted by the committee for eventual membership, after affirming it understood it might not be eligible for membership in the actual foundation.

Wise User Looks Before He Leases

By Ronald A. Frank

Of the CW Staff

NEW YORK. Recent developments affecting the leasing of 360 and 370 systems can benefit the user who plans ahead. Both the IBM announcement of a four-year, 370 lease, without overtime, and the accounting changes recommended by auditors to write-off 360s by 1978 (CW, March 7) contain potential advantages for the wise user.

The IBM plan to sign up users for 48 months at the same rate as its regular monthly CPU rental also contains an interesting clause concerning future credits toward the purchase of the mainframe.

On the surface, the IBM long-term CPU lease eliminates the advantage used by leasing companies — i.e., no overtime charge for the user. But by requiring the

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user to sign at the same rates as the straight monthly rental, IBM is not really providing a cash discount except on the monthly bill for multistaff sites.

Stiff Penalties

In return for signing up with IBM for the 48-month lease, the user is subject to stiff cancellation penalties. The charge for terminating a CPU lease is six-months' rental or 25% of the remaining costs of the lease, whichever is lower. And the penalty applies to "the removal of features, model downgrades and machine discontinuances," an IBM spokesman said.

The user who replaces 512K of IBM core with an independent memory would have to pay the penalty based on the incremental cost of the IBM core. A user who upgrades from a small 370 to a larger system from IBM would also pay the penalty, IBM said.

The user who upgrades within the same 370 model, by adding a feature during (Continued on Page 4)

DP Science Fair Coming to NCC

NEW YORK. A High School Computer Science Fair will be part of the 1973 National Computer Conference & Exposition, June 4-8, in the New York Coliseum.

A grand prize will be awarded for the most significant project displayed. Prizes will also be awarded in four specific areas: new applications of computers; design and construction of computer components; programming; and mathematics of computation.

All projects must be suitable for display, according to officials. Both hardware and software projects are solicited and any programming language or computing equipment may be used.

In the case of software projects, graphical or poster displays highlighting key ideas should be used. All entry forms must be submitted by April 1 to Professor Frank S. Beckman, chairman of the fair. The submission form includes details of the proposed project and must be signed by a teacher familiar with the student's work.

Completed project displays must be delivered to the conference by 12 noon on June 4. Prizes will be presented during the 1973 NCC. All high school students, including June 1973 graduates, are eligible to submit projects.

Additional information is available from Professor F.S. Beckman, Chairman, Department of Information Science, Brooklyn College, CUNY, Brooklyn, N.Y. 11210.

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Court Rebukes IBM on Index, Rejects Reconstruction

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ber one, which required IBM and the Justice Department to keep all documents relating to electronic data processing, was entered into the court at the urging of IBM and that the IBM attorneys had actually written the order that they are now accused of violating.

On signing that order, he said, he had told IBM and the Justice Department, "I expect this order to be implemented precisely and in every possible way . . .

"I don't want a single document destroyed under any circumstances without the consent of this court."

He also noted he had told the attorneys that he would hold hearings any time they felt the order was too restrictive with regard to documents in the case.

And finally, Edelman stated that the order had applied to any documents "directly or indirectly" in the possession of either of them.

But, he added, with IBM lawyers present the data base in the Control Data base had been destroyed over the weekend of Jan. 13-14.

Even though IBM argued that the documents were in another case, Edelman found that "if IBM, directly or indirectly, procured the destruction of the documents and other material in question, IBM can be held responsible for that destruction."

The documents filed in the government

case "convince (sic) the court that IBM procured the destruction of CDC's data base. It was destroyed at the request of IBM, pursuant to an agreement between IBM and CDC, and, therefore, IBM can be held responsible for its destruction."

The IBM claim that the data base was the work product of the CDC lawyers is "without merit," Edelman ruled.

A Big "If"

If the documents had not been destroyed, he said, IBM could have asked him to rule on whether or not the Justice Department could use them and he could have determined if they really were the work product of CDC attorneys and therefore not admissible.

But, he said, "as matters now stand, the court can never know whether the materials destroyed were, in fact, work product."

Even though he did not grant the Jus-

tice Department request to make IBM pay for reconstruction of the index, Edelman said: "By refusing to grant all the relief requested by the government, the court does not mean to suggest that it was (sic) IBM's violation of this court's order lightly."

"Indeed, such unseemly behavior coming as it does from respected members of the bar of this court is particularly distressing. There appears to be in this rash manner. Prudence would have dictated a different course."

At the very least, the court should have been informed that IBM was getting the data base destroyed by Control Data, he said, noting that in the future he expects to be informed of any similar plans.

While the Justice Department refused to comment on the ruling last week, IBM said it was "disappointed in the judge's ruling relative the pretrial order number one and naturally we will comply with what he has said us to do."

However, the firm would not estimate how many documents it will have to turn over to the judge under the ruling.

After inspecting those documents, he will decide which ones should be passed along to the Justice Department to help it in reconstructing the data base in the case.

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3420 Storage More Than Tripled

(Continued from Page 1)

tape libraries, an IBM spokesman said. Three models of the 3420 have the

Arts-III Complete, Data Transfer Seen

WASHINGTON, D.C. - The production of all 64 computerized automated radar terminal systems (Arts-III) ordered by the Federal Aviation Administration has been completed.

Arts-III "unquestionably has been one of the most successful technical programs ever undertaken by the FAA," FAA administrator John H. Shaffer said in announcing completion of the project by Univac.

With the completion of the Arts-III program, most of the nation's air traffic system is now computerized, with Arts-III serving airports and local air traffic while the air route traffic control system serves long distance flights.

With the Arts-III units, aircraft near airports are automatically tagged with alphanumeric displays on a CRT. This helps the air traffic controller sort out the flights on his screen.

In time, the FAA plans to link all of the Arts-III installations with the computerized air route traffic control centers for automatic data transfer between the facilities. In addition, the agency is developing a lower capacity Arts-III system for use in smaller airports across the country.

higher density capability. Model 4 has a tape speed of 75 in./sec.; Model 6 operates at 125 in./sec. and the Model 8 handles 200 in./sec. Access times are 2.3 msec, 1.6 msec and 1.1 msec respectively.

Extended Term

The faster models are available under the extended term plan at prices ranging from \$580/mo. to \$752/mo. Under the regular monthly rental plan prices range from \$690/mo. to \$895/mo.

Customers who convert their tape systems to the faster models will not have to pay installation charges. But it may take "seven to ten hours" to make the change, a spokesman estimated.

For users who now have 3420 systems on fixed term lease plans, the tape systems can be converted and the extended lease plan initiated without paying early termination charges. For these users, the 24-month extended term plan begins with the first monthly payment, and the fixed term plan requirements are cancelled.

Conversion Charge

For users who own 3420 systems a one-time conversion charge is applied. A typical field conversion of a purchased Model 3 drive to a Model 6 will cost \$14,500, IBM said. Maintenance prices on older drives for purchase systems could also be proportionately higher.

Purchase prices range from \$43,000 to \$65,970. First deliveries are scheduled for the fourth quarter of 1973, while field conversions will begin in the first quarter of 1974.

Mini Helps Lab Solve Bomb, Fire Crimes

WASHINGTON, D.C. - Two mini systems in the U.S. Treasury Department's Bureau of Alcohol, Tobacco and Firearms Crime Laboratory are helping solve crimes involving bomb fragments, fire arms and other materials found at the scene of a crime.

The minis perform pulse height analysis on the materials under test, a system developed for the ATF Laboratory by Monitor Labs, Inc., San Diego, Calif. One of the systems played a major role in helping solve a bombing of the Bank of America building in Santa Barbara, Calif.

A ceiling tile from the building, with fragments of the bomb and traces of unburned explosives imbedded in it, was sent to the ATF Laboratory along with a pipe found in the suspect's garage and soil from his shoes.

The material was chemically treated and irradiated in a nuclear reactor. A pulse height analysis proved the fragments in the ceiling tile were made up of the same material as the pipe from the suspect's garage, and that the soil from the shoes matched soil from around the bank.

On this evidence the suspect was later indicted.

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- ☐ Never has a big enough budget.

370 Users . . . Ampex Offers These Problem Solvers

Mainframe memory enhancement for IBM 370 models 135, 145, 155, 165, 158 and 168.

The ARM-3380 is the Ampex memory enhancement for IBM models 155 and 165. It will expand a 155 to 2 megabytes and a 165 to 3 megabytes of total Ampex memory without any CPU or software modifications. This can save IBM 370/155 users as much as \$140,000 (depending on the computer model). Operating speed and size of this proven dependable main memory are the same as the IBM 3380.

ARM-158 or 168 semiconductor memories will be available for users of either IBM 370 model 158 or 168 virtually upon delivery of the CPU.



The Ampex ARM-135 is a semiconductor memory enhancement that equals IBM-135 enhancement limits of 240K bytes in a compact 30" x 30" x 60" module. Equally important, Ampex also offers 48K and 96K byte modules for those who need some, but not maximum, memory capacity. Other significant features: The ARM-135 has the same transient power protection as IBM, its own test panel (unlike IBM) so you can test off-line, and is designed to take maximum advantage of IBM diagnostic routines. And you save up to 40% without sacrificing any performance.

The Ampex ARM-145 also is a semiconductor memory offering expansion to 512K bytes of memory. A real space saver, the ARM-145 stores up to 352K bytes in a single 24" x 60" x 60" cabinet. The ARM-145 has the same transient power protection, the same error-correction circuitry as the IBM 3345, its own test panel, and will take maximum advantage of IBM diagnostic routines . . . all at significant dollar savings.

Tape drives. The biggest news since Ampex pioneered tape recording is the new two-in-one configuration for the Ampex TC-38/TM-34 tape subsystem. Now you can reduce the amount of space required for

tape drives and controllers in your DP center by nearly 50% . . . or double the number of drives without allocating more space. You get two high-performance 3420-compatible tape drives with data rates to 200 KB in a single cabinet, only a little larger than one individually mounted tape drive. But space reduction is only the beginning. The autothread on the TM-34 now is equipped with an exclusive "halo of air" that vastly improves threading without the reel-surround cartridge. The tape will literally thread itself from any position. Furthermore, the TM-34 has an automatic reel latch that forever eliminates manually operated locking levers or buttons. And, of course, this drive has a radial interface for operation with either the Ampex TC-38 or the IBM 3803 controller. Format configurations include any combination of 9-track, single or dual density, and 7-track with data rates from 60 to 200 KB.

And, of course, the TM-34 is also available as a stand-alone unit with data rates up to 320 KB.



Disks. Whether or not your 370 has ISC, Ampex disk drive systems will save you money and space. Compatible with either the 3350 or the 3333, one Ampex controller will handle 16 drives with a total storage capacity of 1.6 billion bytes. That's only part of the story. Add plug interchangeability, average access time of 28 milliseconds, convenient top loading, read-write compatibility, storage of 100 million bytes per drive, dual channeling and faster starts and stops. And you save 15% with the Ampex DS-330 system.

360 Users . . . Ampex Offers These Problem Solvers

Mainframe memory enhancement. For IBM models 22, 30, 40, 50, 85, and 67. ARM-22 expands the 380/22 to 64K; ARM-30 can expand the 360/30 to 128K; and ARM-40 can expand the 360/40 to 448K. The ARM-50 works to 1½ megabytes, and the ARM-2365 is designed for use with IBM models 360/65 and 67.



Mainframe-ECM. Equipped with a semiconductor cache memory, the standard ECM operates at the effective speed of the IBM 2365 mainframe memory. It is the most economical 1 to 8 megabyte replacement for the 2365. For the model 50, ECM still is available with a 2.5 microsecond cycle time.

Disks. Ampex Double Density Disks are today's most cost-effective technique for adding storage capacity . . . 233 megabytes in half the space or 488 megabytes in the same space as a 2314 system. No software changes under DOS or OS.

Tape drives. There's no space-saving system on the market to compare with the new Ampex two-in-one configuration. Everything we've written about Ampex tape drive for IBM-370 systems is equally true for 360 systems. So, why not expand the capabilities of your IBM-380 and save the expense of starting all over again with a 370?



Univac Users . . . Ampex Offers These Problem Solvers

Mainframe memory enhancement. The ARM-1108 operates at the same speed and is completely compatible to 1108, 1106 and 494 systems operating with Exec 2, Exec 8 or OMEGA. Furthermore, this memory enhancement has a built-in MMA to facilitate use in multi-processor environments. No minimum Univac memory is required.

Disks. The Ampex DS-8430 disk subsystem is a high-performance alternative to either Univac disk or drum systems. The DS-8430 has a radial interface to provide disk operation with proven FASTRAND software. This disk subsystem may also operate in a FASTRAND emulation mode, providing all the advantages of removable disks. It's the most efficient disk subsystem to be put on a Univac computer.

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Prospective Lessee Looks Carefully Before He Leases

(Continued from Page 1)

the four-year lease, has two choices. He can pay the regular monthly fee plus 15% extra each month, or he can pay the monthly rate without the 15% and extend the life of the lease according to a complicated IBM formula.

Purchase Credits

Under the new lease plan, the customer can accumulate credits of up to 50% of the purchase price at the end of four years. Previously IBM provided a more limited credit to monthly rental users, allowing them a total of 12-months' rental to be applied toward a purchase.

The real value of the 50% purchase option four years from now is open to question. Some leasing sources see the IBM credit as a kind of market support. They say IBM is affirming that the 370 will be worth at least 50% despite any new announcements made to obsolete the equipment. Others see the 50% as being below the value that would normally be expected.

But most residual lease values are based on a 10% or 11% depreciation each year, on a typical eight-year lease. So the 50% purchase guarantee is probably below the value that would have been carried by independent leasing firms. The third-party firm would probably have shown a

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value of 57% or 58% and the user might have to pay the difference as a termination fee.

For the user this can mean that the residual value projected by the third-party lessor is greater than the market value "for a considerable portion" of the term of the lease, according to one industry spokesman. It is more likely the leasing firms will adjust their residual values to match IBM's.

Third-Party Savings

But the user who chooses a third-party

lease can also save on his rentals. On a five-year package lease plan from Ite, a 370/158 user would save as much as \$500,000 compared to the four-year IBM plan, according to Dan Ellison, director of financial leasing at Ite.

The user who signs with a third-party firm can probably save an additional 30% over IBM 48-month lease rates. He can, in effect, "save up" the purchase price of the system. And if he decides to purchase after four years, the third-party leasing company will probably allow him to convert at the projected market value of 50% set by IBM. In the interim, the third-party lease customer can sublease his system, an option not available to IBM CPU lessees.

The user who plans ahead has to save "only" 12.5% per year (anything additional is gravy) with the third-party leasing company in order to make his projected purchase pay for itself.

Most leasing companies give the user a larger discount but also require their customers to sign up for periods ranging from

five to eight years.

360 Benefits

The accounting write-off of 360s by 1978 can provide users with computing power that costs them almost nothing to operate. Purchase users have to depreciate their equipment by a certain percentage each year. And lease users, this depreciation offsets potential profits.

So a machine carried on the user's books at zero value costs only the amount of money required to run it. This items include electricity, maintenance and similar fixed charges.

In this environment, the user is free to add enhancements to his "obsolete" system at relatively low cost. Such features as the CHCS Accelerator (CW, Feb. 28) and a virtual capability such as the DAT box (CW, Jan. 31) could be financially justifiable to these users.

Most users realize the functional utility of a 360 will not cease simply because of an accounting procedure. And the 360s will probably be very favorably priced beginning in 1979, for the user who is willing to "make do."

If this approach seems far-fetched, then today's users who are still running 1401s and 7094s must be all wrong. The fact remains that functional utility, or the ability of a CPU to do the job, rests in the eyes of the user.

By continuing to strive for technical obsolescence with continued new products and systems, IBM may be grooming a whole new class of users.

You don't have to marry us.

Converting from DOS to OS operation is risky. Ordinarily, once you get into it there's no easy way out.

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DP Foundation Ills Continue to Increase

(Continued from Page 1)

QDP was going to hold public meetings to keep the profession aware of what was happening, was nominated for the chairmanship of the public information subcommittee. Instead, as Sennet told QDP's first public meeting early this month, his group was expelled by Swearingen.

According to Sennet, Swearingen never gave any authority for the expulsion of QDP nor for his own authority to make such an expulsion. "It is just the same replay that we have heard at each meeting," Sennet said.

"I'm currently are a local organization," Sennet continued, "and we would be in a very effective position to be able to monitor the operations of the foundation, and the influence of DPMA on foundation affairs on behalf of the ordinary practitioners. Perhaps that is what they are afraid of. I do not know, but they are certainly afraid of something."

At the foundation meeting ACM's John Harris asked the organizing subcommittee, of which he was recently appointed chairman, to drop the recommended "equal votes for each society ruling," a provision which had been specifically included in the recommendations of the ACM/DPMA committee.

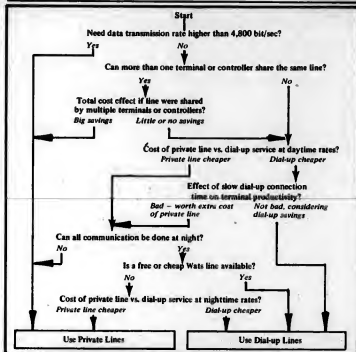
Harris called for a weighted set of criteria with the largest society getting the most votes.

Also, the Society of Certified Data Processors' representative, Marc Greenberg, who had been nominated by the organizing committee for chairmanship of the legal subcommittee, found that although the committee had been approved in the minutes, it had been abolished by the foundation cochairmen acting jointly. Its functions had been transferred to the organizing committee headed by John Harris, Greenberg said.

DP Up Down Under

CANBERRA, Australia—The number of digital computers in use in Australia increased by 363, or about 30%, during the year ended June 30, 1972, according to the Federal Department of Labor and National Service.

In June there were 1,594 computers in operation in Australia and another 339 were on order.



Choosing Private or Dial-Up Lines

Selecting Communications

By Michael Weinstein
Of the CW staff

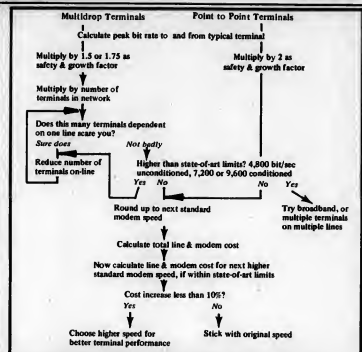
NEW YORK—Flowcharting communications needs can help users choose between dial-up or private lines and choose speeds for private voice-grade lines.

This message with two sample charts was presented by Jim Beck of American Standard, Inc. at a Caravan/73 panel on data communication.

The first chart deals with choosing between private or dial-up lines.

Following this chart down, if the user needs transmission rates higher than 4,800 bit/sec, he is compelled to use private lines as present dial-up service will not support rates higher than 4,800 bit/sec.

Assuming the user needs a rate of 4,800 bit/sec or less, the next step is to determine the use of the line.



Choosing Speeds for Private Voice-Grade Lines

Lines? Flowchart Needs

If more than one terminal or controller share the line, the user should then analyze potential savings. If the savings are large, this may justify a private line. If the savings are not large, the user should establish the costs of private lines vs. dial-up service using peak time hours.

Caravan/73: New York

If dial-up is cheaper, the user must then take into account the effect of slow dial-up connection time on terminal productivity.

If terminal response time will not be adversely affected, dial-up services are probably best.

Night Work

However, if terminal response is too slow under dial-up or it is decided that private lines are cheaper, the next question is whether communication can be done during the night.

If the answer is no, the user is again forced back to choosing a private line. If the answer is yes, the question then arises as to whether the user has access to a free or cheap Wats line.

If no Wats line is available, the final consideration is whether the amount of data to be transmitted makes a dial-up arrangement more expensive than a private line.

Choosing Line Speeds

The second user flowchart presented by Beck concerned choosing speeds for private voice-grade lines.

Starting with the type of terminal the user is operating, calculate the peak bit rate to and from a typical terminal.

Multiply this by the appropriate growth and safety factor because users will find, as their communications become more stable, usage will generally increase above initial projections, Beck asserted.

Search Covers Food Data

CHICAGO—An expansion of computer literature searches to include the *Food Science and Technology Abstracts* data base was announced by the Computer Search Center of IIT Research Institute.

This data base is generated by the International Food Information Service in Germany and covers journals and patents dealing with all aspects of food science and technology.

If using multidrop terminals, the user must determine for himself whether the number of terminals dependent on one line is too risky.

If the user is afraid of a line failure and cannot afford to have the large number of terminals dropped, he must reduce the number of terminals.

This reduction must continue until the user is reasonably satisfied that a line drop will not cause extreme difficulties. From this point users will be able to calculate the cost of increasing modem speed. If the cost increase is less than 10%, the user is advised to choose the higher speed for better performance. Otherwise he should remain with the original speed.

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Day 1:
9:00 a.m. Date Entry
2:30 p.m. Data Communication Planning
Day 2:
9:00 a.m. Data Communications
2:30 p.m. Software Evaluation Panel

Day 3:
9:00 a.m. Installation Management
2:30 p.m. Small Systems Panel
*Entry to the morning sessions is \$25 per day, which includes all workshop materials, lunch, and admission to the Exposition Hall (see pre-registration form on page 22). Afternoon sessions are open to all - free of charge.

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Upgrade Saves L.A. Service Bureau \$35,000/Mo; 43 Agencies Benefit

By Marvin Smahter

CW Correspondent

LOS ANGELES — An equipment upgrade tied to a massive relocation has yielded savings of at least \$35,000/mo for the Los Angeles Data Service Bureau (DSB), one of the nation's largest municipal centralized computer centers.

A move from widely scattered facilities in City Hall to a 30,000-square-ft computer facility made possible a switch from two IBM 360/50s and a 360/40 to two 370/155s with a savings of \$30,000/mo.

Another \$15,000 was saved because the increased capacity of the new machines permitted reduction of overflow that was being farmed out.

Tug Tamaru, general manager of DSB, also said "considerable" savings are anticipated with a switch from 24 IBM tape drives to 24 Storage Technology Corp. (STC) tape drives.

Other benefits of the upgrade have been increased turnaround and a significantly larger capacity for the city's big law enforcement system, he said.

Tamaru said the 155s are fully duplexed, as are the I/O units. "It gives us a lot more flexibility. We can do almost anything at almost any time."

DSB also gets added versatility with six IBM 2314 disk drive spindles which are switchable between two Systems Engineering Laboratories (SEL) 810Bs and the 155s through a channel selector adapter.

The SEL 810Bs are being set up for a Fire Command and Control System and it was preferable to link them with the 2314s rather than with DSB's IBM 3330s, Tamaru said.

The biggest problem of the upgrade was getting all 7,000 programs running under OS and DOS converted to 370 OS in the time available, according to William D. Porter, deputy general manager of DSB. But the move was made in time and at a

waiting in the wings for several years.

The users are involved in work ranging from planning and community analysis with the aid of computer data to earthquake studies and computerized inventories of the animals in the city zoo.

Many of the systems developed for the users are innovative; AWWWS was one of the earliest to use a front-end communications concentrator for message switching, instead of trying to do it all with a 360, Tamaru claimed.

Tamaru said the enormous library system is "one of the most sophisticated library support systems in the world." It will be completed in about two years but there are now one million records on file and three to four million records in the catalog file.

A computerized book order and purchase system uses teleprocessing to order books every morning.

A system to keep track of millions of



CW Photos by M. Smahter

The Data Service Bureau uses 24 tape drives.

dollars of overdue and stolen books is waiting on development of an economical transaction device which can be installed at the 67 library branches.

Porter said the city is currently using microfilm on a service bureau basis for library, personnel and police work and would like to expand it to other departments. If the expansion takes place, "we'll probably have our own hardware because we're at the break-even point now," he added.

In the city's financial department, daily information is available to the city controller on two CRTs from a financial file of every city account and fund. It is

updated every night and ready for interrogation at 7 a.m.

Another project in the works calls for installation of remote terminals at outlying city administrative offices so they can access the centralized data banks.

This will be accomplished with two types of data communications networks — one for administrative and financial uses and the other for public safety functions.

An envisioned, the plan will use satellite computers or front-end computers and minis. Small satellites may be dedicated to certain functions but will be interfaced with large general-purpose machines.

*Pourquoi est-ce que je dois changer de langue?
Il m'a pris dix ans pour apprendre celle-ci.*

(Why should I switch languages? It's taken ten years to learn this one.)

Warum wird das EDP immer teurer?

(Why is EDP getting more and more expensive?)

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(Obsolete? I just bought it!)

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Programmer Rob Wilson tests out administrative programs.

cost under the \$50,000 which had been budgeted for the move.

The bureau services 43 of the city's 45 departments with a staff of 375.

Its biggest customer is the police department which has the top partition, or 30%, of one of the 155s dedicated to it.

Much of that capacity is for the regional online Automated Want and Warrant System (AWWS), a city-county system enabling any police officer in the region to inquire from the field on the criminal status of any vehicle or individual.

The move and the switch to larger equipment permitted the bureau to add three cities to the 55 cities on the system, which now has over one million AWWWS records on-line and processes one million transactions/mo.

The expansion also reduced the system's response time from 10 to 12 seconds to five to six seconds.

Tamaru and Porter said the customers have been extremely pleased with the changes because now they can add systems and applications that have been

Calif. Checkless Society Checked

By Marvin Smallheiser

CW Correspondent

LOS ANGELES—The effort in California to initiate the cashless, checkless society has met with a temporary problem: insufficient business.

The Automatic Payments and Deposits System, a statewide, computerized plan for handling payrolls and billpaying, has plenty of funds to operate but has attracted few "customers" since it started looking for them in mid-October.

The system is designed to eliminate payroll checks and route authorized deposits and payments through automated clearinghouses in Los Angeles and San Francisco.

Bank customers can also authorize payment of certain monthly bills, like mortgages and utility bills, under the system.

Although 90% of the over 1,000 banking offices in California have

signed up, the system has only four twice-monthly payrolls, one once-a-week payroll and a file of monthly mortgage payments.

Bank officials who helped set up the system are not dismayed, however, and said they expected a slow start-up, particularly because of the paperwork.

"The paperwork is killing us," said Gene Thurman, vice-president of the City National Bank, Beverly Hills, and vice-president of the California Automated Clearinghouse.

Thurman said a major achievement has been getting the first debits on the system.

Beginning last month automatic deductions from bank accounts for mortgage payments started. The system began with about 200 but is expected to have 800.

Thurman said no bank has had automatic debits for mortgage payments before.

Lack of User Enthusiasm Blamed For Lag in Automated Pay Systems

By a CW Staff Writer

ATLANTA, Ga.—Little customer demand and lack of enthusiasm—not technology—have been the major factors retarding the acceptance of electronic or computerized payment systems in banks, according to Federal Reserve Board member George W. Mitchell.

Speaking at a symposium on "The Development of an Electronic Funds Transfer System" here recently, Mitchell said: "While there have been ups and downs in adapting technology to money transfer, such setbacks have not been the major barrier to greater progress."

"Customer enthusiasm for electronic payment has been lacking. Convenience, the major advantage to individuals, has generated little spontaneous enthusiasm thus far," he said.

But, he added, some of this lack of enthusiasm might be the fault of the banking industry and other supporters of the computerized transfer of funds that

will be extremely important if the nation is to move closer to the goal of a "cashless, checkless" society.

"Financial benefits" possible with such systems "to individuals have not been offered and probably depend on competitive pressures," he stated.

He's On

At the same time, Mitchell said pressure might be mounting for banks to offer better and newer services to their customers to get them used to the automatic transfer of funds.

For example, he noted that savings and loan institutions were showing a great deal of interest in using such systems in new ways and offering new services. He noted, as an example, a Massachusetts experiment where several institutions are offering customers interest on accounts that can be used much like checking accounts.

But other factors are also holding back the acceptance of the computerized transfer of funds, he indicated.

"To some degree acceptance is held back by custom—money moves change slowly," he noted.

"Also, many individuals do not identify with the ephemeral character of an electronic 'byte,' and would prefer 'real' money or evidence thereof—coin, currency, or even a bank statement," he said.

Hospital Bill Letter Humanizes Machine —With Side Benefit

CHARLESTON, W. Va.—Persons with past due bills to the Charleston General Hospital receive the following personal letter from the hospital's computer suggesting payment of bills before the human staff finds out:

"Hello, there, I am the hospital's computer. As yet no one but me knows that you have not been making regular payments on this account. However, if I have not processed a payment from you within 10 days I will tell a human who will resort to other means of collection..."

Big Brother Is Watching

While he admits the letter may cause some feeling of "big brotherism," Herb Johnson, vice-president for finance, said "there is no easy way to tell people they owe you money."

"We are hoping that by using a humorous approach people will not get mad and will take advantage of the 10-day grace period to get their account in order," he said.

In some cases this approach may be working too well as the computer is now in contact with a typewriter trying to unravel one account.

The typewriter's initial correspondence states:

"Dear Mr. or Ms. Computer: I am a typewriter at the office of M and M. Recently our mailbox received your notice in regard to a balance owed your masters by my master's client. The Xerox machine and I are sincerely grateful for your not informing those awful humans as to this bill, and if they punch your buttons the way they punch mine, I can see why you tend to be a little hesitant to do their bidding."

"I am told by my humans that their client is now in the process of suing some other human for the injuries he received and I will forward the billing to the particular humans for your remittance."

Sincerely, Royal Typewriter
P.S.—Our telephone would like your number for purposes of computer dating."

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Until now, tape manufacturers like Wabash have used similar methods in repairing their tape to pass the rigid certification test to achieve, "error free tape at the time of certification".

With the introduction of Quadronix I, repairing tape has been eliminated, like Mrs. Johnson's job. You see, we've known for some time that repaired tape, like a repaired road, could lead you into trouble, so we've been working on the problem. We've solved it and would like to tell you all about it. So fill out the coupon and we'll send you our new 12 page brochure on Quadronix I, the industry's first certified computer tape unscarred by traditional manufacturing techniques.

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Editorials

An End to Secrecy

The secrecy surrounding many of the documents in the various antitrust suits against IBM must be ended both for the good of the computer user, the computer industry and the general public.

The latest instance of what seems to be part of an ongoing effort to keep knowledge of the cases from public view occurred when IBM blocked the release of 26 documents requested by the Computer Industry Association—documents that had been filed as part of the Telex-IBM case and which therefore should have been entered in the public record.

IBM claims the documents contained trade secret information that would be harmful to it if released publicly. But the CIA has charged the information in the documents concerns only marketing projections indicating how IBM viewed the effects of some price and configuration changes.

If the CIA view is correct, then the documents could show users—in IBM's own words—how IBM juggled prices in order to keep competition down while still extracting the maximum profit from user expenditures.

The information could reveal the extent to which IBM tries to maintain price control in the computer marketplace and how the firm makes configuration decisions based solely on maximizing profits.

But that information is not available.

It is time for IBM to start following the protestations often made by its lawyers in court that it wants all of the facts of the cases out in the open for public scrutiny.

If this is really so, why not open up all of the documents in the case for public scrutiny? If IBM really has nothing to hide, if its hands are as clean as it proclaims, then it will release all of the documents in the case.

Back to the Original Plan

Originally the joint DPMA/ACM plan for a Computer Foundation was an attractive one. It was approved by both societies' executive boards. It was approved by the DPMA Certification Council and it attracted the support of a broad base of organizations and individuals in the industry.

In fact, the plan, as laid down by the special Certification and Testing Advisory Committee, demonstrated that a broad-based certification program would be acceptable—just as it said it would.

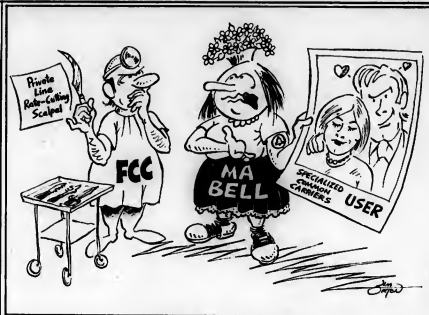
Currently, however, the original plan is not being implemented. The draft constitution and bylaws created by DPMA's and ACM's representatives in many ways are a travesty of the plan.

For instance, instead of joint, equal control they substituted a meaningless, powerless expensive board of directors—with effective control vested in an executive director and the president.

Moreover, the actions since the draft constitution was unveiled effectively destroyed the idea that the ACM and DPMA representatives were interested in implementing the original plan.

There are problems. But, there is also an opportunity. No one has attacked the original plan. So why not stop arguing about what plan to adopt, and simply work at implementing the plan that has everyone's approval?

Computerworld believes this is the most constructive path possible under the circumstances. The profession deserves the chance that the original plan gave it, and will not look kindly upon anyone who denies it this opportunity.



'A Facelift, Doc—on the Double!'

Letters to the Editor

Beware RPGII Perils—Nothing Hard Is Easy

I have been reading the recent odes to RPG II with a mixture of amusement, horror and awe for those more gifted than I who have been able to make the language work for them on a cost-effective basis.

I have seven years of experience in the field, with a long hitch of reentrant 360 BAL for communications. A year ago, I took a job here in New Mexico as the manager of a service bureau for the rural electric co-ops. The board had already ordered a System/3 Model 10 with a full "Rural Electric Accounting" FDP (price, \$3,000). This work was written in RPG II.

After a full year's work by three seasoned programmers, the package has been debugged and runs in a reasonable amount of time. When first implemented, a manual system would have run rings around it.

With the above as an introduction, I would like to make a few remarks on this "language of the future." There was one key sentence in the viewpoint article which stated that a detailed knowledge of the RPG cycle was necessary to attain any of the benefits described [CW, Feb. 27]. I would concur with this far from true. Most of us are interested in learning more and don't have time to read a book, or go back to school. Why not have short items in the paper written to teach us about a subject, not just inform?

We all want the people we hire to be better trained. The educational institutions are trying but not hard enough, and the manufacturers are just starting to try. Why can't CW try too?

Education is the only true path to professional improvement. If CW is to be of service, it must change its policy and step into problems of education, or, if you wish, the problem of updating the community.

R.E. Sennet, C.D.E.
Bartlett, Ill.

By definition a newspaper is "(1) a paper that is printed and distributed usually daily or

erized logic for normal DP events. That logic is often more generalized and clever than one would guess, and will cause havoc once the novice ventures away from his 30-minute print specials. Some of these RPG enigma sound like they were written in Armoak.

R.D. Mallory
Manager

Cooperative Services, Inc.
Santa Fe, New Mexico

How Much Should Newspaper Educate?

I wish to take issue with the policy of Computerworld. The newspaper is not written "for the computer community." Within the pages each week CW talks about today in the field and in the profession. Each week comments are made on the changes that new equipment and new knowledge are causing.

How do humans change? Only by education.

I feel that CW is the major means of communication in the data processing profession, and has an obligation and a responsibility to assist in the education of the profession by providing continuing items that would teach languages, systems, principles of operations, etc.

CW seems to feel we all know all we need to know. This is far from true. Most of us are interested in learning more and don't have time to read a book, or go back to school. Why not have short items in the paper written to teach us about a subject, not just inform?

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R.E. Sennet, C.D.E.
Bartlett, Ill.

weekly and contains news, articles of opinion, features, and advertising"—Webster's Seventh New Collegiate Dictionary.

Computerworld's editors believe our main purpose is to keep our readers up to date on current events in the DP community. We hope many of our interview or informative-type stories will also serve to educate readers by illustrating the experiences of other users. Many of our feature-type stories—such as the articles on disk recording and testing in the Systems & Peripherals sections of the March 7 and 14 issues—do fit a straight education need. Ed.

Markup Rates Missing

Again Alan Taylor's dissenting for IBM is quite evident: "IBM Maintenance Markup Revealed," CW, Feb. 14, I am not an IBM'er nor even an ex-IBM'er, as a matter of fact, I do not like their methods but I will not attack them with half truths.

There is one item missing from the charts and is very possibly only known to IBM, which is overhead rate. Without this knowledge the 300% and 440% markups become very unreal. With the support system IBM has, I would venture to guess its overhead is in excess of 150%.

The Time Service Contract chart shows there are 36 hours of indirect labor (140 productive hours vs. 176 available hours). Or does Taylor suggest the engineer doesn't get paid for these 36 hours?

Travel time was considered in the Time Service Contract but not in the Maintenance Service Contract. Does one assume that with a Maintenance Service Contract the engineer does not have to travel?

I know that with the term "gross markup" the overhead is being considered, but this is not evident in the chart or the article.

In the two above-mentioned areas, Taylor would find other concerns such as CDC, Honeywell, Xerox, Burroughs and Digital Equipment with quite comparable "gross markups."

Charles A. Cline
Burlington, Mass.

Specific Areas of Interest

Four Journals Hope to Simulate Cobol Development

Six months ago the readers of this column responded to an open survey, saying they wanted to know a lot more about Cobol and how it was governed. They wanted to insure that their interests were being watched during the development of the language; they wanted to know why a language which was supposed to be hard to be transferred from one machine to another; they wanted to know how whole areas like the Report Writer could be threatened without involving the community. In general, they had a lot of questions.

Since then I have been trying to get the answers. Perhaps the most enlightening moment came when the Cobol Coordinating Committee sat down for a couple of hours with Robert Kearney, chairman of the Ansi Committee X3J4, the organization which puts a stamp of approval on the Cobol standard, as produced by the Programming Languages Committee (PLC). PLC is one of the five autonomous committees of the Conference on Data Systems Languages (Codasyl).

In our meeting with Kearney, we asked many questions. But the key answer that came out of that meeting was that answers are not available from Ansi X3J4.

Questions Not Avoided

It was not that Kearney was avoiding our questions. One of the major functions of the American National Standards Institute is to see that the public does get answers.

But Kearney gave the committee the answers. On the point of transferability, for instance, he said it was not directly relevant to the question of the Cobol standard. The Cobol standard just deals with interpreting the language.

On the point of complete time, or object time, and error messages, he pointed out that these also were not relevant to the standard. Indeed, we found the great majority of questions were simply not answered - if answering means more than saying "not relevant."

We also discovered that this situation was not just a recent development. Even back in 1968, when questions such as ours came in, they were put off for later consideration. Kearney admitted he did not believe these had ever been further considered by his committee or its predecessor. He felt if they had been picked up by one of the sponsors in Codasyl, and put into the appropriate form, then nothing would have happened.

Facts Hard to Find

At the same time, I found it extremely difficult to determine how matters concerning Cobol were proceeding. The current vice-chairman of PLC told me the process of getting a proposal accepted by PLC was akin to getting a case accepted by the Supreme Court. He was not exaggerating.

I found the operations of the executive committee of Codasyl equally mysterious. In desperation I traveled from Washington to Atlanta with Jack Jones, chairman of the executive committee. I spent several hours with him but he himself was unable to find the minutes of the recent Executive Council Committee meeting. (Later he did send a couple of copies to me.)

A visit to the PLC archives produced more results. The archives are kept in a single four-drawer filing cabinet in Washington, held by William Rinehofs of the U.S. Air Force. They were not complete and it appears much of the material is being kept secret.

To find answers in this area an ordinary

Cobol practitioner would have to have the patience of Job, and the investigation capabilities of Sherlock Holmes. Something clearly had to be done. The question was what.

False Starts

We made a few false starts. First we tried to make much of the old documentation going back to 1962 and microfilmed it. This was sent out to centers across the country, but so far has not had effective results.

The fault may well be ours because of a lack of administrative capability to coordinate the operation. However, it showed that centers were available, that documents could be made available, and it gave us an idea of what the costs would be. (They were high.)

This experiment also showed, however, that merely having the documents did not fulfill our needs. Moreover, when we later tried taking a question and answering it by discussing the whole Cobol situation and suggesting where possibly useful documents might be, the readers' eyes began to glaze.

Situation Too Complex

Again this was not surprising. The Cobol situation is anything but a simple one. It means making sense of most practicing programmers would rather let things go on as they are, or simply abandon Cobol altogether, rather than try to fight their way through the thickets of Ansi, Codasyl, X3J4, etc.

In addition, in talking to some of the people who are expert in one or more Cobol areas, we found them unwilling to consider the type of questions the Cobol programmers were asking. The experts were concentrating on specific areas and they wanted us to concentrate there also. They finally concluded that there were too many questions to be asked, to be addressed, and both audiences got turned off if we gave them too much of the material appropriate to the other.

Segmented Information

This was the clue we needed. It seemed not so much a question of providing full information, as of providing relevant information. It seems we must segment information into specific interest areas. The answer then seems to be to develop ways of answering questions publicly, but in the context of particular interests.

So the Cobol Coordinating Committee is introducing a series of periodicals to keep up with users' interests in Cobol. To start with we are publishing the *3Cs Question and Answer Journal*.

Questions that come in are answered at length - generally one or two pages each - and are not discussed simply within the confines of a particular standard. Instead the answers deal with the situation as it exists.

They take into account the problems of maintaining the Cobol advantages - all of them - and the lack of resources available in Codasyl. And they deal with questions like "Why shouldn't Cobol be stopped now?", as well as others. What the *Question and Answer Journal* doesn't do is expect the questioner to start attending PLC meetings, or become a proponent of the standard.

The *Question and Answer Journal* started in January, and is now coming out monthly. But the *Question and Answer Journal* does not handle everything. It does not, for instance, handle the specific proposals that are made either by the readers or by the Cobol Coordinating Committee itself. These proposals are considered in a different journal - the *3Cs Proposal Journal* which began last month.

In the case of the proposals made to the Cobol Coordinating Committee, the journals include a recommendation and recommendation to the committee for action. The

Subscription Form for 3Cs Journals

To: The 3Cs Research Department
16 Bradford Road
Framingham, Mass. 01701

Please supply subscriptions as follows:

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review is done by the 3C Research Department which calls on whatever knowledge is available.

The reviews are sent back to the person who submitted the proposal for his comments before the coordinating committee itself takes action, so that the proposals can be handled as quickly as possible at a later date.

Technical Considerations

A third area of sufficient importance to merit a separate journal deals with technical considerations. For instance, we have received considerable details on a decision-table compiler insert into Cobol from Norway.

Other technical considerations came from the Cobol Compiler Symposium that Codasyl sponsored last year. These include the details and problems involved in the debugging area, etc.

It is not known how many of these technical considerations actually are. They should be fairly specialized detailed suggestions which could later be worked up into proposals. The first issue of the *Technical Journal* will come out this month.

Then the Rag-Bag

The fourth (and last) of the 3Cs journals is a bit of a rag-bag. It is somewhat similar to the Share secretary's distribution that many readers are familiar with, and the last pages in the Codasyl PLC publications.

The journal simply consists of statements made by various people who are of reasonable interest to the community, with additional background statements. It includes, for instance, the statement by the chairman of the Programming Languages Committee, that PLC, for financial reasons, can only supply a single copy of its mimeographed minutes. It includes the formal IBM claim that Ansi has delegated authority over Cobol to PLC.

It includes the statements of ACM President Anthony Ralston, that ACM as a matter of policy, will not pay royalties on the printing of Cobol documents, even where it is making a substantial profit from it.

All these items shed a certain amount of light on the background of Codasyl, and we think some people may be interested in them. And so the fourth and last journal is the *3Cs Correspondence Journal*.

Year's Trial

The present plan is to run these four journals for about a year, producing them and distributing them to anyone who wants them. The members of the Cobol Coordinating Committee will act on ideas in the appropriate areas.

Between them they hold membership on most of the relevant industry groups including Ansi, Ansi Committee X3, Codasyl, etc. If worthwhile proposals should appear that should be incorporated into the language we will carry it all with them. Frankly, that is one of the main functions of the committee.

Now the matter is up to you. If you are interested in the development of Cobol and in safeguarding the interests of current Cobol users, please consider subscribing to one or more of the journals with the order forms above.

We would also like your opinions on whether each journal is a worthwhile operation before beginning the second year of publication.

So far, this seems to be the best way in which we can assist the Cobol operation and the Cobol user. It certainly is a new way. So let's give it a try.

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Letters to the Editor

Degree or Experience Needed For Membership in ACM

In the Feb. 14 issue, Alan Taylor listed the professional groups which support the Computer Foundation. In the table, the requirements for membership in the Association for Computing Machinery (ACM) were shown incorrectly.

Any person who subscribes to the purposes of ACM may join as an associate member. A person who has either a bachelors degree or the academic equivalent of four years' full-time experience in information processing may join as a full member.

The annual dues are \$35 for both and the only difference is that associate members do not vote in elections or on other ACM matters. There is also a student

membership available to full-time students at \$8 dues.

In addition, while there are no mandatory local dues, there are over 200 regular and student chapters, which charge no more than \$5. There are also subunits of ACM organized along specialized technical lines which issue their own publications and generally charge nominal dues.

Alan Taylor
ACM Vice-President

New York, N.Y.

Computerworld welcomes comments from its readers. Preference will be given to letters of 150 words or less. Letters should be addressed to: Editor, Computerworld, 797 Washington St., Newton, Mass. 02160.

[Other letters on Page 12.]

Hammering Home a Point

Why Don't Salesmen Talk of the Application?

By Jerrold Asher

Special to Computerworld

My 88 cent bargain hammer broke. I set out to buy a quality hammer—one like the professionals use. My local builder's supply company had a dozen different models which I narrowed down to two: one for \$2.39 and another for \$7.89. Both were the same size, looked equivalent, and had about the same left and balance, yet the price tags were quite different.

So I approached the department manager, an elderly gentleman who looked like he really knew his onions—uh, hardware—showed him the two hammers and asked the difference.

"This one is made in Japan. (So are some of the finest cameras, almost all our transistor radios, at least 50% of our hand calculators, some excellent compact automobiles...)

"The other hammer is made by Old Time Hardware. It's guaranteed."

"For how long?" I asked, in my caveat emptorial tone.

"It's guaranteed, if it ever breaks, Old Time will replace it."

"Forever? Where is the guarantee?"

"Read the guarantee on that label on the handle."

The "guarantee" on the handle was an admonition to wear safety glasses when using the hammer.

"That's not a guarantee; it's a safety warning."

"Well, the other hammer is made in Japan. Everyone knows Old Time tools are the best."

Further conversation was obviously pointless. I deposited both on the counter and left—hammers.

Before you conclude hardware salesmen are a totally different lot, consider this: our current breed of business machine salesmen is little better equipped to sell complex data processing equipment than

the gentleman described above.

Business machine salesmen speak with great authority of the mechanical features of their various equipment but with a shameless lack of knowledge of how these

Viewpoint

features would be applied to the prospect's business.

The sales contest becomes a numbers game: this disk is bigger than that disk; or our magnetic stripe contains more characters than their magnetic stripe. We have a core memory inside our terminals, and the cheaper ones do not.

Is it asking too much to expect the salesman of \$10,000 plus equipment to show how the machine will process the data in the client's business more effectively? What became of the "buyer benefits" on which we used to be drilled in sales manuals and sales training lectures?

The client is not an engineer. How can he tell which of three different disk sizes or cassette tapes will be useful in his application?

Maybe business machines are so simple or good salesmen are so hard to find that the major manufacturers don't bother teaching how to apply the equipment to the application.

Perhaps it's simply assumed that data processing is so well understood, that hearing the capabilities of any equipment is enough to appreciate its usefulness. I would like to relax and take refuge in that oversimplification. Unfortunately, I find the purveyors of even more complex terminal equipment suffer the same malady.

Our company regularly purchases CRT terminals of which there are at least six excellent manufacturers. Yet each of the salesmen of our potential sources only speaks glowingly of the technical features of his device.

When we define our applications to these men and request definitions as to why their particular unit is best suited, we get more specification speeches and unique feature facts. This is also true of line printers and cartridge disk storage units. We know some applications are just not suited for some peripheral devices.

Are we expecting too much of the business machine and computer peripherals salesmen? Shouldn't these well-paid men be capable of applying the unique features of their equipment to specific problems? Isn't that what salesmanship is? We think so.

Won't someone please sell me a hammer?

Jerrold Asher is marketing manager for Sierra Data Systems, Inc., Pasadena, Calif.

Letters to the Editor

CDP Exam Not a Standard With 17 Questions on Cobol

After taking the CDP exam last month, I must say I was very disappointed with the software and programming section. Out of 60 questions in this section, 17

questions were directly related to Cobol.

I have read numerous articles regarding the CDP exam which make statements to the effect that this exam is aimed at the industry in general and should be established as a standard for the industry.

It is beyond reason that a "standard" for the industry should emphasize so heavily one computer language used by one segment of the industry. There were no other direct questions regarding any other procedure-oriented language in the software section or any other section of the exam.

If the DPMA cannot develop 60 basic software questions without reference to a procedure-oriented language, I would be most happy to supply them with questions that are basic to computer programming regardless of the language used.

If the intent of the DPMA is to make the CDP exam a standard, then direct references to tools used by only a segment of the industry must be removed. If the intent is to orient the exam toward one segment of the industry then this should be stated and the exam has met its due fate.

Douglas M. King
Houston, Texas

AEDS Support Was There!

I enjoyed the Alan Taylor column in the Feb. 14 issue. I am sorry, however, that his ears were not quite as sharp as they should have been at the initial meeting to discuss the organization of the Computer Foundation.

I am referring in particular to the boxed column in which he listed the professional societies which have expressed support for the Computer Foundation. He did not mention the Association for Educational Data Systems which was represented at that meeting by myself and Paul Pair.

AEDS currently has about 1,200 members and has been in existence since 1962. I should also mention that our annual convention will be held April 16-19 at the Marriott Hotel in New Orleans. Our dues are \$20, and our headquarters are at 1201 Sixteenth St. N.W., Washington, D.C. 20036.

Bruce K. Alcorn
President-Elect

AEDS
Washington, D.C.

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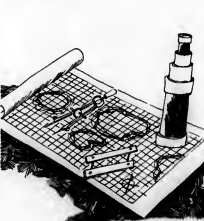
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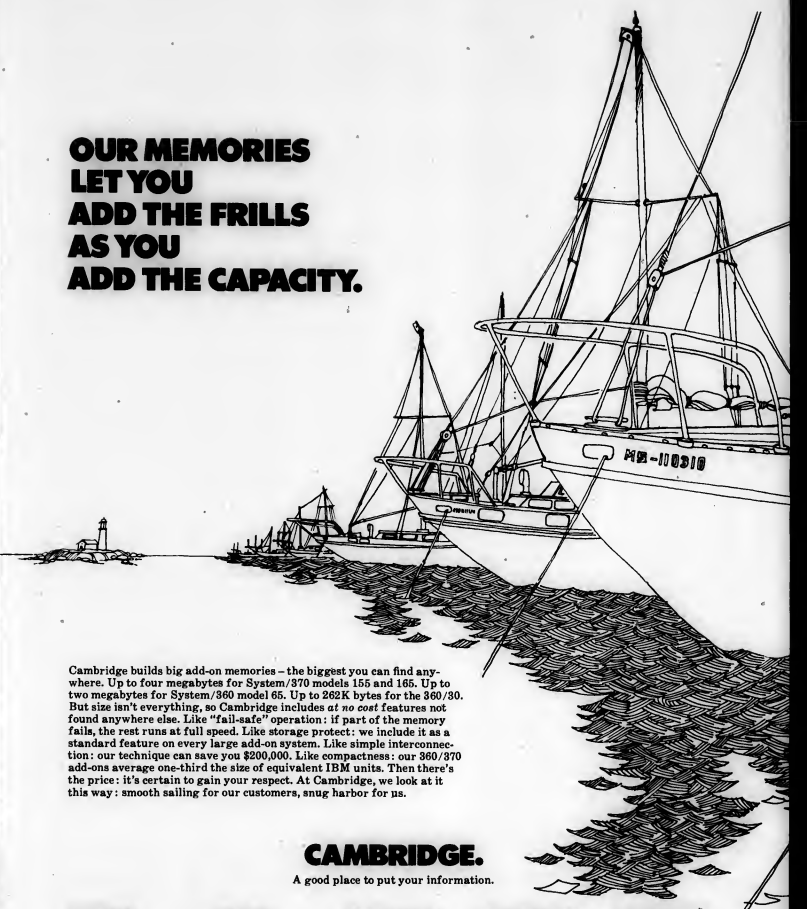
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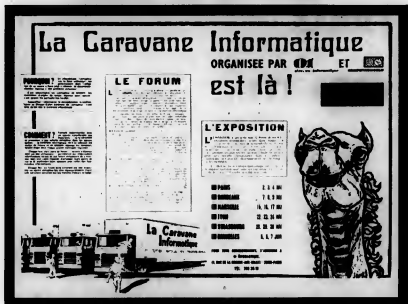
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This combination of French control, French publicity and user-orientation will draw thousands of important EDP buying influences as we travel to six cities in 2 countries. And these people are part of one of the most rapidly growing computer markets in the world. Here are some of the figures, according to a recent survey by International Data Corporation:

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Data Entry equipment (especially key-to-tape, key-to-disc) is projected for a 28% increase in 1973.

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Dates	City	Site
May 2-4	Paris	Hotel PLM Saint-Jacques
May 7-9	Bordeaux	Palais Des Expositions
May 15-17	Marseille	Palais Des Congres
May 22-24	Lyon	Palais Des Congres
May 28-30	Strasbourg	Palais Des Expositions
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SOFTWARE SERVICES

Random Notes

Government Users Group Plans California Meeting

MONTEREY, Calif. — Open to DP staffs at all levels of government, the Computer Performance Evaluation Users Group (CPEUG) is holding its spring meeting next week at the Naval Postgraduate School here to encourage attendance by people from west coast facilities, according to CPEUG chairman John A. Blue of the Navy's AEP Equipment Selection Office.

Pre-registration is not required, Blue noted, and the meeting starts Tuesday, March 20, and will run through noon on Friday, March 23.

PDP-11 Users Gain New 'Bias' Cross-Assembler, and ...

TAZANNA, Calif. — A cross-assembler that can utilize various large-scale CPUs — including IBM 360/370, Burroughs B6700, or Univac 1100 — to produce object programs for DEC PDP-11/20 or 11/45 minicomputers, is now available from Compata Inc.

Written in Fortran, the package can be delivered in one week for \$1,500. Given four to six weeks, Compata said it can adapt Bias to produce object code for other target machines, for an average cost of \$7,000 to \$10,000. Compata is at 18345 Ventura Blvd., 91356.

... 'Mimic' Device Simulation

WALTHAM, Mass. — Device simulation for DEC PDP-11 users, a new assembler for Data General Nova users and improved debugging facilities for most of the popular minis are among the enhancements in the Mimic system of programming aids available on the First Data Corp. time-sharing service.

Assembly, loading and testing support for GRI-909 and -99 minis has also been added to the Mimic system originally developed by Applied Data Research. In addition to those aids, a machine language assembler is available for the Honeywell H316/516 family of minis. First Data noted from 400 Totten Pond Road, 02154.

Univac Adapts 'Ices' for 1100s

BLUE BELL, Pa. — The Integrated Civil Engineering System (Ices) and two sub-systems — Structural Design Language (Strudl II) and a file storage facility (Table I) — will be available for Univac 1100 users operating in batch, remote batch time-sharing mode under Exec 8, within the next two months.

The new software from Univac will include a problem oriented language (POL) allowing the user to state his input in familiar terms, and an engineering programming language (Iccrnt) to support dynamic array capabilities in the subroutines that actually perform the engineering operations.

Ex-ACM Head Claims

'Extensibles' Resolve Language Gaps

By Don Laviot
OF THE CW Staff

COLUMBUS, Ohio — Users should bader their vendors to provide extensible languages, Prof. Bernard A. Galler of the University of Michigan told the recent Computer Science Conference here, and there are very few reasons why the vendors shouldn't be willing to accommodate the users in this area, just as they are now making microprogramming more readily available.

Extensible languages (ELs) allow a user to define new functions as he needs them, without necessarily affecting the basic compiler. With this capability, programmers can express logic appropriate to the application, rather than express logic appropriate to an otherwise arbitrary language, the former president of the Association for Computing Machinery (ACM) noted.

"It's always greener in someone else's language," he mused, adding that the definition facility is useful to both novice and professional programmer. The latter is able to make small personal changes in the language so it is more comfortable for him; the other can build library "packages" of extensions to ease the work required by the average programmer.

Defining extensions is "something any intelligent programmer can do," Galler said, but noted he wasn't advocating a mass confusion of many personalized language processors. The best EL should be rich enough so that most users would never have to extend it, "as long as they have the possibility if they need it."

In effect, he added, ELs allow available languages to grow "in a graceful way" without some committee meeting somewhere to hammer out a revised standard.

Though ELs have limitations on how far they can be extended, they shouldn't be confused, he cautioned, with Cobol short-hands and other abbreviation schemes which don't actually change a language, or with "compiler-compilers" which change a language for all users — not just the one redefining the function.

The personal convenience of working with a language that does what the user really wants it to do can be translated directly into greater productivity, he said, and that should be reason enough for any DP manager to advocate the use of ELs. Beyond that, however, programs written under ELs have been found to be easier for maintenance programmers to read, since they are problem-rather than DP procedure-oriented, Galler added.

Optimize Program

At a deeper level, Galler noted that the object code changes made possible

through ELs can be used to optimize the program itself, in terms of accuracy or efficiency, or to monitor the performance of the program without requiring a special monitoring package.

ELs have been around since the days of MAD on the 7090 in the early 1960s, he noted, but the developers have matured sharply in the past few years. Not long ago, he said, each was interested in his own "beautiful little language." Now they are struggling with defining the real problems of language design and the harder problems of control structures.

In any case, ELs are better accepted than they were and they can be extremely effective tools. Vendors are still wary of problems they may encounter trying to maintain ELs at user sites, Galler said, but they should also see ELs as a way toward simpler standard languages that the user can customize on his own.

Accounting Standards Enforced Through 'Editor' JCL Checking

LYONS, Ill. — DOS/360 installation managers can enforce their system accounting standards as jobs are presented to the system for execution, through the Job Control Statement Editor program from General Electronics.

The Editor works in conjunction with the Job Accounting (JA) interface provided by DOS Release 25 and later releases, but is tailored to user-specified needs which may extend beyond the information support used by the JA interface. In effect, the Editor prevents non-standard jobs from entering the job

stream and ultimately the job accounting system.

The Editor checks every Job and Exec card for information defined as required by the user's standards. Parameters beyond those normally needed by JCL could be used, General Electronics suggested, to identify the processing cycle for each job, or its status in terms of test, production or rerun.

Explain Reruns

Reruns may include an additional code explaining why the job had to be done over. In any case, if the cards do not meet the standards, the Editor will, at a user option, issue a warning message, cancel the job or both.

The package requires no change in the IBM-supplied operating system or in the JA interface coding, the company said, and the use of the Editor can be stopped whenever the user is satisfied that the JCL cards are both accurate and set up according to the desired standards.

General Electronics handles the initial tailoring of the Editor to the user's specifications. This forces the user to define his standards before he orders the package, and it insures that the program is tailored properly, at least the first time, the firm noted.

Once tailored, the package is delivered in object form. If the trial use is satisfactory, the user pays a one-time charge of \$300 and the vendor sends the source code so the user can make any further modifications he wishes.

The company can be reached through P.O. Box 79, 60534.

'Pacer' Allows CICS Adjustment

HACKENSACK, N.J. — The Program Activity Configurator (Pacer) module from On-Line Software Inc. permits IBM CICS system adjustments to be made on a demand basis without taking the system or the program off-line.

Pacer allows either OS or DOS users to reroute transactions to a substitute program when an executing program develops problems. It permits on-line modification of program control parameters, including both task priority and task security.

In operation this means several versions of a CICS application can be carried on the system concurrently, for testing or backup. Processing can be shifted back to a proven version of a program, for example, if a test or attempted production use of a revised version fails.

Pacer is accessed through a conventional CICS terminal entry, On-Line said. Re-

routing is done by entering the name of the program that is to process the transactions, and the transaction code for each input being shifted.

Program characteristics can be altered by supplying the new security level of the module and the desired dispatching priority of the defined task. Pacer responds by typing out verified information.

The response also lists other actions triggered by the request, but not specifically cited in the request. When transactions are rerouted, for example, the old program is shown as deleted. Both old and new conditions are listed when priority or security changes are made.

Pacer can be installed in any DOS/CICS version 1.0 or 1.1, or S/CICS version 2.0 or 2.2 configuration. The package is available for \$500 from 411 Hackensack Ave., 07601.

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Two Firms Install 'Public' Remote Batch Facilities

By Don Leavitt

Of the CW Staff

"Public" terminal facilities near by third parties allow qualified users to have high-speed I/O linkage to a choice of remote-computing networks, and may ultimately provide an alternative to users maintaining their own in-house DP installations.

Some network vendors have already seen the need to supplement the slow speed and limited output capabilities of terminals often found at user sites. They have set up remote batch stations in major cities to which users can direct output too bulky for their own interactive terminals.

Now, two separate independent companies—Advanced Terminal Applications (ATA), New York, and RJE Data Processing Inc., Chicago—have installed their own remote batch equipment and made it available to users with valid user numbers for remote-computing networks.

Since users from several networks will be underwriting the cost of the one remote station, the costs of the extended

support should be less than if the station were limited to users from a single network. That, at least, is the concept.

Both ATA and RJE Data Processing are basing their services on Mohawk Data Sciences Model 2400 intelligent terminals, but the companies clearly differ in the amount of service they feel the user wants or needs.

ATA sees its primary role as a receiving point for long print runs and punched card output from application programs initiated at the user's own terminal. If the user wishes, ATA even arranges delivery of the output after it has been received on the MDS 2400.

User Work Space

By contrast, the Chicago office of RJE Data Processing includes work space so that users can run jobs and develop programs directly on or through the Mohawk equipment. Subscribers are provided offices specifically for their use, but even the more casual non-subscribing user will have desk space, the company said.

Each of the Mohawk systems can be used as a stand-alone CPU for simple jobs, in addition to serving as a terminal to a remote-computing network. ATA's configuration is large enough to handle a five-tape sort; RJE Data Processing's includes both a 7-channel and a 9-channel tape drive.

Users pay the remote-computing networks directly for any resources they access through the new centers, and pay ATA or RJE Data Processing separately

for the use of their facilities. ATA has an initiation fee of \$50 and an as-used charge of \$24/terminal hour, subject to a \$10 "per session" minimum. Ata is at 437 Madison Ave., New York, N.Y. 10022.

RJE Data Processing subscribers pay \$100/mo. plus an average of \$3 or \$4/job, depending on the amount and type of output generated. This firm is located at 4738 W. Peterson Ave., Chicago, Ill. 60646.

'Relo-Plus' Supports 360/370 DOS

DANBURY, Conn. — Maintenance of a core image library of self-relocatable programs for DOS 360/370 users is easier and less core consuming with Relo-Plus than with earlier packages that performed the same basic function, according to the developer, Universal Software Inc.

As with all self-relocation packages, Relo-Plus allows the user to catalog one

copy of an application program for execution in any partition that is available. Under standard DOS, the user has to catalog and maintain a copy of the program or each partition in which it might run.

Relocation with the Universal support is controlled through the addition of a single control card when the user's program is being cataloged.

Relo-Plus supports either single or multiphased programs and provides an improved fetching method, to get the programs into core faster. The new approach is said to reduce the number of directory seeks and to allow the reading of multiple program blocks in a single disk revolution.

Universal sees self-relocation as a useful facility in its own right, but also as a complementary enhancement to the spooling of slow-speed I/O provided by Universal's Asap. Therefore the company offers Relo-Plus as a stand-alone package for \$2,000 or \$1,500/mo. or as an extra-cost option with DOS Asap for \$950.

Universal Software is at Commerce Park, 06810.

In One Pass, Cars 2 Surveys Many Files, Produces 11 Reports

EAST ORANGE, N.J. — Users can generate as many as 11 reports from multiple files, with a single pass of the enhanced Cars 2 Audit Reporter package from Computer Audit Systems Inc.

Intended as an examination system for financial data files, the software permits three heading and two detail line formats per report with a free format to the heading and detail information for each. The system also supports flexible output editing, (which may be a report or a new magnetic tape), totaling of selected fields and user-controlled report sequencing.

The package can be used to extract information from a file or simply to survey the data contained in the file. Users may specify as many as 25 criteria per pass for either extraction or surveying, and internal control records can be bypassed as long as they can be recognized, a company spokesman said.

The Cars 2 Audit Reporter includes the previously available facility for the statistical sampling of records based on random selection.

While the package includes a broad range of possible audit routines, it is nonetheless efficient, the company explained, since only selected procedures are retained in the load-and-go programs created by the system. Since the parameters can be changed with each use, auditors are able to test files several ways in rapid succession, thereby assuring the integrity of the data, the spokesman noted.

Written in ANS Cobol, the new Cars 2 can be used on most third generation CPUs with at least 64K bytes of storage. The system costs \$10,500 plus training and installation support. These costs may be modified somewhat in light of user experience with other audit retrieval systems, the company added.

Computer Audit Systems is at 725 Park Ave., 07107.

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COMMUNICATIONS

Data Briefs

Tektronix Questions Users On Plan for Graphics Group

BEAVERTON, Ore. — Tektronix Inc. is circulating a questionnaire to users of its graphics display terminals to determine the need for a user group.

The group would provide "a central point of exchange of information among users." The questionnaire asks users to list the equipment they are using together with their applications and programming languages now being utilized.

Information is available from Jon A. Meads, cochairman of the users' group committee, Box 500, 97005.

Singer Adds Stand-Alone Modem

SAN LEANDRO, Calif. — The Singer Co. has a stand-alone modem for its System Ten and 4310 data terminal. The 2024 modem operates over 2- and 4-wire dedicated or dial-up lines and is compatible with the Bell 201A and 201B data sets.

The Singer modem can transmit at switch-selectable rates ranging from 1,000 to 2,400 bit/sec. A front panel indicator displays carrier status, and the device includes local and remote loop-back features.

The modem costs \$1,600 or \$60/mo on a one-year lease. Delivery is 60 days from 2350 Washington Ave., 94577.

Telenet Plans Data System

WALTHAM, Mass. — Telenet Communications Corp., a subsidiary of Bolt, Beranek and Newman, Inc., is planning to operate a "multipurpose packet-switching network" for data communications users. In a letter to the FCC, Telenet said it intends to file an application similar to that already filed by Packet Communications Inc., "as soon as supporting material is completed."

Telenet and BBN are developing packet-switching equipment to operate with satellites and higher-capacity digital facilities, the letter said. The firm is at 275 Wyman St., 02154.

Unit Tests Distortion

CHERRY HILL, N.J. — Computest Corp. has a portable distortion analyzer for testing synchronous and asynchronous data lines.

The Model DA-541 uses an LED display to record the percentage of distortion. In addition, the unit can determine the type and cause of distortion including bias, end, characteristic and speed.

The tester operates at 12 data speeds ranging from 45.5 to 4,800 bit/sec. The DA-541 operates from batteries or ac power and accepts 5- through 8-level start/stop codes. It is priced at \$825 from the firm at Three Computer Drive, 08002.

OTTAWA, Canada — An end-to-end digital communications service called Dataroute will begin operations in 11 Canadian cities in April.

Providing full-duplex private-line serial transmissions in a broad range of synchronous and asynchronous speeds, the Dataroute service will be expressly designed to meet the needs of computer/communications users.

Described as the "first nationwide digital data system," the Dataroute service will provide cost savings up to 90% compared with present analog facilities, according to the Computer Communications Group of the Trans-Canada Telephone System (TCTS).

Dataroute service areas scheduled to begin operation on April 15 include Vancouver, Calgary, Regina, Winnipeg, Toronto, Ottawa, Montreal, Quebec City, Halifax, Moncton and St. John, N.B. By the end of the year the network will be expanded to 23 cities, a spokesman said.

For subscribers not directly in one of the initial service areas, dial-up access

will be available. Included in the Dataroute service offerings are point-to-point private-line facilities operating from 110 to 50 kbit/sec; and multi-point private line from 110- to 19.2 kbit/sec.

The Dataroute service will be provided on an end-to-end turnkey basis including all interface equipment required up to the user's CPU and/or terminal interface.

The greatest cost savings will be realized by low-speed subscribers such as time-sharing users, according to TCTS. A 300 word/min circuit from Toronto to Vancouver now costs about \$3,500/mo, but on the Dataroute the same facilities will cost only \$350/mo. Savings in the medium-speed range are described as less dramatic but savings for high-speed transmission are also significant, according to TCTS.

The Dataroute rates will be less dependent on distance and more associated with transmission speed and the time of day than existing services. Separate rates will be available to

cover the business day from 8 a.m. to 5 p.m.; for night-time service; and for 24-hour usage.

Much of the equipment being used for the Dataroute service is being provided by Computer Transmission Corp. and is also available to U.S. data users.

Two types of interface will be provided depending on the subscriber's data speed. The Dataroute will interface with sites operating at asynchronous speeds up to 2,400 bit/sec. The Intertran will be used for synchronous transmissions up to 50 kbit/sec.

For network multiplexing and switching operations, Multitran units will be used and Synchron devices will provide Dataroute master clocking, a synchronous hierarchy and diagnostic alarm information for TCTS.

Rates for the Dataroute have been fixed with appropriate Canadian regulatory bodies and are expected to be in time to meet the April start-up date, according to a TCTS spokesman.

For Man-CPU Dialogue

Terminal Interface Called Inefficient

By Ronald A. Frank
Of the CW Staff

NEWTON, Mass. — For most types of computers, "remarkably little has been done to provide an efficient man-machine interface. The user must be protected from the overwhelming mass of data that a CPU can generate while at the same time being able to effectively communicate with the machine."

These are the types of problems addressed in a book by James Martin called *Design of Man-Computer Dialogues*.

Up to now mainframe systems have been designed from the inside out based primarily on the capabilities of the CPU. But now they will have to be designed from the outside in, according to Martin.

The ease with which the terminal user can communicate with the system will determine how well he can utilize the system, and the "dialogue" that takes place between the user and his terminal should take into account the shortcomings of both the man and the machine, the author says.

In a section on terminal keyboards, the author contrasts the IBM 3670 stockpoker terminal, which has 178 dedicated function keys, with more free-form devices such as those which have P/L or Fortran keyboards.

Careful attention should be given to the amount of data displayed at one time to the operator, Martin thinks. Some programs have a tendency to fill up a display screen simply because it is there. But most alphanumeric dialogues between the terminal and the operator pro-

ceed faster if the amount of information on the screen is minimized.

There should be one idea per display and the operator should be asked to respond to only one thought at a time. This is especially critical in "computer-initiated" dialogues, the author says.

Columnar presentation of data on a display terminal is usually most efficient with numbers right-justified and letters left-justified. And short line lengths usually contribute to faster "absorption of the displayed data."

The potential or existing terminal user must find parts of the book frustrating because Martin calls attention to some

characteristics over which there is little user control.

For example, the computer response times demanded by varying input methods are often difficult to change. Lines "drawn" on a screen by a light pen should appear faster than a character generated by depressing a key, the author says.

But by viewing the terminal interface as a way to talk to the computer, Martin will make users consider trade-offs that go far beyond the simple hardware constraints of the equipment. The book is available from Prentice-Hall, Englewood Cliffs, N.J.

Most Communication Parameters Monitored by CLA-3000 Analyzer

ROCKVILLE, Md. — Penril Data Communications, Inc. has introduced a portable communications line analyzer that is said to save users up to \$15,000 compared with comparable test equipment.

Called the CLA-3000, the line analyzer can measure important parameters of a voice-grade line including envelope delay distortion, amplitude response, harmonic and intermodulation distortion, phase jitter, gain and phase hits, impulse noise hits, frequency monitoring and error rates.

Although a technically skilled operator is required to interpret the test readings, the CLA-3000 can function with a trans-

pender located at a remote site. This allows a line to be analyzed without requiring a test instrument at both ends, the spokesman said.

The tester gives data users the same line analysis capabilities as Bell System engineers, the company says. Some functions, such as harmonic and intermodulation distortion, cannot currently be checked by local carriers, a Penril spokesman said.

The CLA-3000 costs \$9,300 and a transponder for operation with a remote site would cost about \$4,000. Comparable test equipment if purchased separately would cost up to \$15,000, the company said. Penril is at 5520 Randolph Road, 20852.



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Digital Links Best

WU Minimizes User-Caused Harm

WASHINGTON, D.C. - There have been no instances of harm to the Western Union communications network during 1972 which were attributable to customer-provided equipment.

This status report on possible harm arising from the interconnection of non-carrier equipment was contained in a letter from Western Union to the FCC.

On digital links, the Western Union transmission network is "rarely susceptible to harm from overload," the letter said. On analog links, "almost all customers" have transmission interface equipment designed to eliminate harm from customer-owned equipment.

Western Union is working with terminal suppliers to make it possible for the customer to own

or lease all of the equipment except for a "demarcation terminal block," the letter said. The non-carrier equipment would interface with WU lines at the terminal block.

"There will inevitably be cases where... higher than normal signal levels or extraneous voltages" appear on WU lines, the letter from R.H. McConnell, executive vice-president, said. On digital services this is not expected to cause harm to the network since "regenerating equipment in the first central

office will effectively block any harm."

"If any isolated instances should be found where a customer's practices are repeatedly causing" a harmful condition, WU will visit the site and explain the situation to the user. But it should rarely happen that a user will persist in causing problems, the letter said.

On lines which WU leases from Bell, telephone company protection standards will apply. But at present 40% of WU's network is non-Bell.

Converter Handles Data Codes

SANTA CLARA, Calif. - Data communications systems incorporating equipment with different code formats, levels or bit rates can now operate with on-line compatibility using the Model 702 Universal Code Converter from Plantronics, Inc.

The Model 702 electronically converts any Ascii, Baudot or other 5-, 6-, 7- or 8-level data signal to any other corresponding code, storing and expanding characters as necessary. Code conversion is accomplished with an MOS ROM programmed to individual user requirements. The memory can be reprogrammed at the factory if system formats change.

Data rates are selected with plug-in "speed chips" programmable from 37.5- to 4,800 bit/sec depending on character storage and expansion requirements. Selectable interface levels are available.

To prevent loss of characters due to code conversion and speed differentials, internal MOS storage can be provided in the Model 702 with a capacity up to 10,000 characters. Additional electronic storage can be added externally.

The Model 702 costs \$1,545 with 30-day delivery from 385 Reed St., 95050.

CRT Driver Can Operate With TV Sets

WILLOW GROVE, Pa. - Digi-Log Systems, Inc. has a portable desk-top CRT driver that is compatible with Model 33 TTY's.

Called the Model 209, Telecomputer, the terminal can be acoustically coupled or hardwired. It has a display format of 640 characters, and can operate in full- or half-duplex modes at 110- and 300 bit/sec.

The Model 209 operates with any TV set or video monitor by clipping onto the antenna terminals at the back of the set. A single Model 209 is said to produce "high-resolution" displays on up to 10 displays.

The Model 209 uses a 64-character Ascii set and the keyboard is similar to the Model 33 TTY with additional control keys. Cursor controls, a local/remote switch, scroll and page modes are included.

The standard model includes either TTY current loop or RS 232 interface. Available options include "Here Is" coding, batch transmit capability, 16-key pad, and 9-in. or 12-in. video monitors.

The unit costs \$1,295 or \$15/mo. Delivery is about 30 days from Digi-Log at 666 Davisville Road, 19090.

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SYSTEMS PERIPHERALS

Bits & Pieces

CDC Unveils Plug-to-Plug Replacement for IBM 3330s

MINNEAPOLIS—Control Data Corp. has announced the CDC 33301 Multiple Disk Memory System—a plug-interchangeable replacement for the IBM 3330 Disk Subsystem.

Designed for use with the IBM 370 Series computers and with Model 85 and larger units within the 360 Series, the 33301 replaces the IBM 3830/3330 Disk Storage Facility.

The CDC subsystem attaches to the IBM mainframe's block multiplexer channel, and uses either CDC 879 or IBM 3336 disk packs.

The CDC system provides 100M to 800M bytes of high-speed, random-access, on-line storage through the use of a control unit and one to eight disk storage units.

A Control Data 38301 System Controller with from one to eight drives leases for \$2,650 to \$5,650/mo on a one-year lease with full maintenance included.

Purchase price of these systems ranges from \$106,000 to \$238,000 without maintenance, for first delivery in June 1973.

Across the entire line, these prices average about 20% lower than IBM prices for comparable subsystems, a CDC spokesman said.

Speeding Up the D-116 Mini

FAIRFIELD, N.J.—Digital Computer Controls, Inc. has a faster version of its D-116 minicomputer.

The D-116H has a full cycle time of 960 nsec—20% faster than the standard D-116—and has a storage capacity of 32K 16-bit words of core memory.

Prices for the D-116H begin at \$4,000 with 4K memory, central processor, programmer console and external I/O connector, from 12 Industrial Road, 07066.

Optical Reader 'Similar' to Copier

PARAMUS, N.J.—Creative Logic Corp. has introduced the Laser Vision Series 3200 Optical Page Reader.

The LV-3200, which uses a laser beam, prism system and a type-written font, can read speeds above 3200 char./sec.

Similar in operation and size to a free-standing office copying machine, the vacuum transport accepts paper sizes from 3 in. by 5 in. up to 9 in. by 11 in. A standard 8-1/2 in. by 11 in. page can be transported, read and processed in six seconds.

Output devices for the unit include 7- or 9-track computer-compatible magnetic tape, punched cards, punched paper tape and medium- or high-speed communication lines.

Priced at approximately \$12,000 (scanner only), the LV-3200 is available from 80 E. Ridgewood Ave., 07652.

Testing--Part II

Disk Performance Improved by 5 Tests

By Alan M. Stoughton
and
Dr. John C. Scott
Special to Computerworld

An understanding of the causes of potential disk errors enables the user to respond more intelligently when troubles arise.

Many errors in writing data onto or reading data from magnetic disks result from protrusions or scratches on the disk's magnetic coating.

After the aluminum substrates have been tested, they are coated (or plated) with a thin film of magnetic material to give the disk its information storage capability.

The process is subject to aggregation of the oxide particles and formation of bubbles in the coating as it is setting. The possibility of nonuniformity of coating in the application process also exists.

A finished disk may contain microscopic surface protrusions which can interfere with the ability of the recording head to fly.

To minimize this risk, prior to sale the disk is spun at a speed less than its intended operating speed with a special burning head over the surface, at about one half the height of the normal read/write heads.

After burning, the height of any surface defects has been reduced to one-half the flying height of standard heads—enough to prevent damage to the read/write heads, but not enough to prevent data errors.

The disk after burning is ready for testing of magnetic recording performance.

Five of the more common tests are: extra bit; missing bit; amplitude modulation; resolution; and overwrite modulation.

When a constant dc writing current is passed through the coils of the head, a uniform flux is generated. If the magnetic medium of the disk has been laid down uniformly, the medium will be magnetized uniformly in one direction.

Disks: Nothing But the Truth

On reading back there will be no induced voltage through the head, since the head only senses changes in flux.

However, where the coating has not been laid down uniformly and regions of differing magnetization exist, the read-back induces signals. The size and width of these extra pulses are directly related to the dimensions of the magnetic defects.

Where voids, scratches and pinholes occur in the magnetic medium, there will be a flux change.

At the edges of any such hole, it is possible that extra bits exist. If the hole is large, the signal amplitude of any magnetic transition scheduled for that region of the disk is zero and the information is lost.

If the hole is small, the signal may fall to x% of its expected amplitude. If x is less than the accepted limit of the read circuitry, then again the information is lost.

This phenomenon is the basis of the missing bit test. Any pulse less than x% is noted as a missing pulse with the value of x selected on the basis of performance specification and yield criteria.

Amplitude Modulation Test

As recorded data goes through the various permutations of the encoding method (e.g., 1 to 0 to 1 to 0 to 1), the amplitude of the read-back signal varies locally because of the differing separation between the magnetic transitions.

Coating uniformity is controlled by performing a modulation test on the playback signal. The signal is passed through low-level filters, and the level of modulation about a mean value is measured.

Resolution Test

Flux changes in a magnetic head cause corresponding flux changes in the magnetic medium passed under the head. The transitional region between is ideally shown as a line.

In reality, it has a finite width, dependent on the amplitude and phase of the applied head field, the magnetic medium formulation and thickness, and the writing frequency.

As the head moves over the disk, the ratio between amplitudes read back from signals written at frequency 1F and those written at 2F will vary.

If this ratio variation becomes excessive, undue peak shift occurs and information is improperly decoded. Consequently it is important to measure this ratio with a known head.

Overwrite Modulation Test

The transition region between data cells is a zone of unsaturated magnetization bounded by two regions of saturated magnetization.

Since the transition regions are differing widths for 1F and 2F, when a 1F signal is overwritten by a 2F signal, it is possible that some of the unsaturated regions for both frequencies coincide.

In this situation the overwritten signal does not completely obliterate the information beneath it.

The effect for a particular read/disk combination can be measured by observing the modulation of a 1F signal which has been overwritten with a 2F signal.

These five tests combined with a measurement of the average amplitude for each test track result in a complete quantitative and qualitative analysis of a disk surface.

Alan Stoughton and Dr. John Scott are employees of Computest in Cherry Hill, N.J.

PDP-11 Users Reap 2 Offerings—Interface Kit and 16K-Bit ROMs

By a CW Staff Writer

In two separate offerings, PDP-11 users can use a do-it-yourself kit from DEC to attach non-DEC-supplied peripherals and add 16K-bit read-only memories from Integrated Memories Inc.

The do-it-yourself interface kit allows non-DEC peripherals, production control units and laboratory control instruments to be plugged directly to the processor via the Unibus.

Each of the three kits includes a pre-wired backplane unit that accommodates from six to 18 standard logic modules which are configured by the user for his particular application, a spokesman said. The Deckit-11H package can read four 16-bit data words from a peripheral device into a PDP-11 processor, and write four 16-bit words or eight 8-bit bytes to a peripheral device. It is priced from \$1,165 (exclusive of cabling and Unibus connectors).

The Deckit-11F reads three 16-bit words while writing one word. It is priced from \$750 (exclusive of cabling and

Unibus connectors).

The Deckit-11-K is designed for reading eight 16-bit words from a peripheral with no words written and is priced from \$695 (exclusive of cabling and Unibus connectors).

Add-On ROM

The field-alterable Capacitive Read-Only Memory (CROM) System Model 10025 from Integrated Memories is pin-to-pin compatible with the DEC PDP-11. The basic system can also be interfaced and packaged for other minicomputers, the firm said.

The system on a pc board costs about \$600 per unit. The full 256 x 16 CROM system uses one card slot in the PDP-11. Larger capacity systems with up to 16,000 bits could be accommodated on the same pc board, the firm noted.

The system has a MTBF calculated at greater than 200,000 hours. The firm is at 3260 Fordham Road, Wilmington, Mass. 01887.

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- Day 2 - Communications** - Including Data Transmission (dial-up and leased lines/broadband) and Equipment Selection (communications processors and control equipment).
- Day 3 - Installation Management** - Including Personnel recruitment and training, Programming management and independent peripherals (including memories).

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- Day 1 - Data Communications Planning
Day 2 - Software Evaluation Panel
Day 3 - Small Systems Panel

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Next stop: Houston. And here are some of the panelists who will be there: Gerry Hammer, Getty Oil; Robert Balough, J. Weinberger; C.M. Metcalf, Bank of the Southwest; Phil Rosalter, Texas Commerce Bank; Joe Hopkins, Gulf State Utilities.

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IBM Opts for Temporary Power System Backup for Data Processing Division

WHITE PLAINS, N.Y. — In choosing a backup power system for its internal Data Processing Division, IBM opted to install a temporary power system.

The system is designed to allow an orderly shutdown through the use of batteries as opposed to attempting to keep the system going for a prolonged period of time with backup power supplied by generators, according to a spokesman for C&D Batteries. IBM's prime consideration, according to the spokesman, is the protection of a data base that receives an average of 600,000

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Components	3 — rectifiers — 500 kW Input — 480 V — ac — 750A 3ph 60Hz Output — 390 V — dc — 1,280 A 6 — solid-state inverters — 250 kVA Input — 320 to 420 V — dc Output — 208 — 120 V — ac — 690 A Battery banks 177 cells in bank — 3 banks — 531 total 2.2 to 2.25 V/cell (nominal) 1.8 to 2.20 V/cell (operating range) 1,950 A hr — 8-hr capacity

Chart 1. IBM's Uninterruptible Power Supply (UPS) System

Also considered in the installation of a battery-type system is protection against transient disturbances to equipment, the spokesman said.

With the UPS system, transient disturbances are eliminated since even minor power interruptions are avoided by means of the

batteries filling the power gap, he asserted.

The GE UPS system was installed in 1970, when the computer center in White Plains was completed. Data processing equipment supported by the backup power system is found in Chart 2.

The Problems of Power

inquiries daily from about 350 IBM locations — including branch offices, manufacturing plants and education centers — nationwide.

The need to protect this data base from damage through transient disturbances and short-term power outages led IBM to install a battery-powered UPS system that could handle problems up to 30 minutes in duration.

In the event of changing requirements, however, space provisions were made for possible installation of generators in the facility, the spokesman added.

Batteries Fill Gap

The current system, designed by GE in conjunction with IBM engineers, is shown in Chart 1.

2 System/360 Model 85s
4 System/360 Model 65s
1 System/360 Model 30
58 2314 disk storage units
17 2841/2303 drum storage units
110 tape drives
20 printers
25 communications control units
40 modems and data sets

Chart 2. Equipment Supported by Battery UPS System at IBM's Data Processing Division

Monitors Detect Disturbances

MENLO PARK, Calif. — Three portable power-line disturbance monitors that simultaneously detect, count, categorize, time and record overvoltages, fast transients and frequency variations on single or 3-phase power lines have been introduced by Programmed Power Inc.

The 3200 Series provides audio/visual alarms and hard-copy printout indicating day, hour and minute, plus a code digit correlating to the specific power anomaly noted, the firm's spokesman said.

The visual alarm (front panel light) is provided for under/over frequency, overvoltage and undervoltage registers.

The appropriate visual alarm is activated when a disturbance exceeds a preset limit with an audio alarm activated at the same time.

A 3-phase switch permits users to select phases for visual metering of voltage.

Power consumption ranges from 30 to 40W for the three

units available.

Optional features include external alarm voltage terminals, BCD output terminals, 440 Vac modification and a 400 Hz, 3-phase modification, he added. Prices for the three units range from \$2,995 to \$3,600 from 141 Jefferson Drive, 94025.

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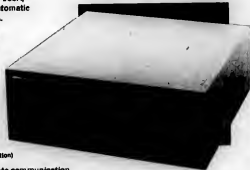
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Ed Decker, Vice President of
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DP, Radio Stations Harmonize to Make Sweet Music

Special to Computerworld

YORK, Pa. — If there is a formula for good FM radio listening, the Susquehanna stations may have hit on it through a small computer.

Applying computer techniques to proven broadcasting parameters, Susquehanna Broadcasting Co. is cutting weekly tapes for five FM stations that are turning listeners on in increasing numbers.

The parameters are simple enough. Songs and artists are separated so no particular one is played back-to-back or repeated in a four-hour time segment. Also, no half-hour tape is repeated in 68 hours — to avoid a selection being played in the same time slot.

Thus, a station does not follow one Frank Sinatra tune with another and the same Sinatra song will not be played again for at least four hours. And, the tape with the Sinatra piece scheduled for 11 a.m. is not run again for 68 hours to avoid repeating the song in the same time frame.

"We could not do what we are doing on a manual basis," explains Robert B. Shipley, group FM program director. "This enables us to stay on target with the type of music we play and it controls repeats," he claims.

The Susquehanna approach is similar to that of the research laboratory where tests are conducted and the results are analyzed for flaws, re-examined and tried until a logical solution is found. In the same vein, the computer goes through a trial and error process, matching and re-

played. The information alerts the programming staff to examine why one tape may be getting more plays than another, or if a frequently broadcast tape may have outplayed its effectiveness.

When the computer is not assembling the program logs for the company's FM

The Small Systems User

stations, it is doing the billing for Susquehanna's cable TV operations, CATV of York, and maintaining the accounts receivable records for seven AM and the five FM outlets.

Bills are prepared by the AM and FM stations and copies are sent to York where the accounts receivable files are updated and aged and sales are analyzed. Aside from typing the bills, the local stations have nothing more to do with billing and accounts receivable paperwork.

On the other hand, the computer pre-

pares the bills sent monthly to some 17,000 cable TV customers. Bills are prepared weekly on a cycle basis and receipts are posted at random daily, at which time the accounts are updated.

The bills are in continuous card format. The company has delayed making the bill a turnaround document because of a large number of exception payments and because the volume has not yet warranted it.

But the bill, according to Larry D. Potteiger, data processing manager, could easily be converted and Susquehanna can do the billing for several additional cable TV companies without appreciably increasing costs.

When orders are received, they are edited and the information is entered into the NCR Century 100. The computer stores the data and prints the necessary shipping copies/bills of lading and order register.

After the orders, which average 150 to 180 daily for all divisions, are shipped, the computer prints the invoices, updates

the accounts receivable file, prepares an invoice register and reduces inventories.

Sales and inventory reports are produced daily. Open orders, including current, future and back orders, are reflected in the remaining available inventory.

Applying set minimums, the production department can determine output needs.

The computer performs the usual aging that goes with every accounts receivable record-keeping process. There are 20,000 customer records in the file. It also figures the commissions based on the sales information captured on entering the orders. Performance reports by customer and product sales forecasting are two other computerized summaries.

Bar graphs are prepared by the computer which shows each line's production, orders, shipments and inventory. The graphs are used by management in determining output cycles and work schedules.

The computer also processes the weekly payrolls for the manufacturing operation and the semimonthly pay records for the salaried radio personnel.

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Penril's 4900B-1 modem pictured above has been selected by the U.S. Internal Revenue Service for use in its nationwide data communications network.

Magnetic disk mounted onto the NCR Century 100 computer contains the selections and artists recorded on half-hour tapes played by the five FM stations.

jecting half hour tapes until the log assembled meets Susquehanna requirements. One result has been an average of less than one hole per week to fill.

Susquehanna makes its program selections from thousands of musical standards, preparing half-hour tapes with selections balanced according to valid listening patterns and established popularity of titles. The company's five FM stations are furnished with several hundred numerically-coded tapes, each containing breaks for news, weather, public service information and commercial announcements. The company's tape-preparation system allows wide flexibility for each station to respond to major news developments or other local occurrences without difficulty. The number of each tape, its selections and artists, are captured on the computer's magnetic disk files.

Then, each Thursday, the computer, applying the program parameters, selects a week's tapes and prints a program log for each day's broadcasting beginning with the following Monday night. If there are any holes, they are filled in manually in York before the logs are distributed to the stations.

While the weekly log indicates when each tape is to be played, a computer list accompanying the tape details the selections, timing and break points.

Besides serving the stations themselves, the computer draws on its disk files to print an alphabetic list of selections and the number of times they're on the tapes. Management uses the report to determine whether the songs are being featured in proportion to their popularity and in keeping with the company's ideas on good listening.

Another computer report shows the frequency with which each tape is being

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Cautious User Becomes a Fan of Key-to-Disk

By Michael Weinstein
of the CW staff

BOSTON—Questions asked at a workshop here on keypunch replacement indicate users still have basic doubts as to the feasibility of using key-to-disk systems.

Everett Lawton of New England Electric Co. addressed the fears of many users when he told of his experiences as one of the first East Coast users to replace keypunch operations with a shared processor key-to-disk system.

He related how he had set up his key-to-disk operation so input was identical to keypunch input—using 80-column records.

"Quite frankly," he said, "we were scared the system might not work and by having an identical format we could always go right back to keypunching."

"But as we got deeper into our new operation, we found our initial fears unfounded," he stated.

Lawton's system consists of two identical systems, each with a central processor

tied directly to a tape unit. Storage medium for each system is a 2.2M-character fixed-head disk subsystem which accepts input—through the CPU—from 11 terminals.

Data is entered from the terminals and stored on disk until preset times when contents of disk are dumped onto tape for input to the company's central computer, he related.

The major benefit to the company, Lawton stated, was the ability of 12 operators to surpass the work performed previously by 18 keypunch operators.

Also, because the verification techniques were superior, the individual quality of each operator was not so critical, he maintained.

In response to questions about actual throughput under the key-to-disk system, Lawton related how the average input by each operator was now about 10,000 keystrokes/hr—with some operators at around 15,000 keystrokes/hr. With IBM 02% the standard had been less than 8,000.

Other reasons cited for this improvement included the shared processors' ability to take data in diverse formats.

Using his key-to-disk system data can be entered in the manner most convenient for the operator and later reformatted by the shared processor into a form the programmer desires.

"We pay \$5,000 total for both systems including two CPUs, two disk subsystems, two tape drives and a shared printer," Lawton said.

"Of this cost, we pay \$75 for each terminal and can add up to 64 terminals to either or both systems for \$75 per terminal."

His advice to other users looking into key-to-disk was "be more concerned with the software and always think 'how can I get my operators to reduce the number of steps needed to enter data.'"

"In view of retaining it is important that a prospective user get an 029 type of keyboard as this is what his keypunch operators are used to working with," he advised.



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Task Force Report Blamed

DP Image in Canada at 'All-Time Low'

By Judy Kramer

Of the CW Staff
TORONTO — The computer/communications industry needs to devote considerably more attention than it has in the past to the public interest, according to Gordon Inns, Bell Canada's vice-president of computer communi-

cations.

"The public image of computers in Canada is at an all-time low," Inns said, thanks to the recent report of the Task Force on Computers and Privacy [CW, Dec. 20, 1972] which, among other things, found "more personal information being collected than most Canadians probably suspect... and made available to a larger number of users than is probably supposed." And the result of this poor public image, he added, is likely to be increased government involvement.

Speaking at a recent meeting of Digital Equipment Corp., users Inns said concerns over computers are really concern over communications, since it is the information retrieval and transmission capability which make data banks a potential threat to the public.

Innovation Needed

To improve this image and prevent government regulation, Inns suggested, the industry needs to innovate and to improve existing services and make them more economical for data users.

"Although the basic telephone network is still a versatile and almost universally available network for carrying low-speed data, its accuracy is not as good

as desired for data," he admitted. And the long holding times of time-sharing terminals make long distance time-sharing via the switched network expensive.

To take the load pressure off the telephone network, Inns said, Bell Canada is developing specified data networks and services.

Some of these new offerings include:

- The Multicomm network, a switched, display configuration offering a set-up time of three seconds and transmission speeds up to 50 kbit/sec.

- Software Controlled Communications Service which uses minis as front-end communications controllers.

- New data terminals including Datason 300, a high-speed teletypewriter terminal and the Vucom I CRT terminal.

- Increased use of digital transmission which would reduce the costs of computer communications. A trial digital network was established in 1971 with "most successful" results.

- The formation of a Computer Communications Group in conjunction with the TransCanada Telephone System, to provide complete service (including hardware, system design and implementation) for data users.

Rewards of User 'Shopping Around' Outweigh Software Building Costs

WASHINGTON, D.C. — When the data communications user goes to a source other than the mainframe maker for his communications processor and terminal, he has to pay a price the cost of developing the software for the system — but the rewards outweigh that cost.

That is the opinion of Air Force Major Glen Vincent of the

Defense Intelligence Agency.

"If the user is satisfied with the terminals and processors offered by the mainframe maker, then he can use the software that those manufacturers have developed," he told a recent Caravan '73 session.

But, he noted, those manufacturers have little desire or reason to make software that will work with other systems and there are few standards that could force them to make such interchangeable software.

So if the user is not completely satisfied with the offerings of his mainframe maker in the communications area, he will have to write his own software for the front-end processor in order to handle the terminals. Or if he doesn't have the capability to have it written in-house, he will have to turn to an outside software developer and pay for it.

"If the user breaks away from the manufacturer of the host system," he said, "he will have to pay the price of developing the software. But the benefits offered by non-mainframe-made communications equipment outweigh this price in most situations."

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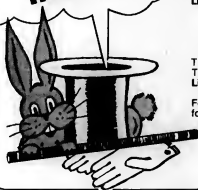
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CI Notes

IBM Papers Remain Secret

TULSA, Okla. — The Computer Industry Association (CIA) has lost in its bid to get some of the secret documents released to the public in the IBM vs. Telrex case being heard here.

Judge A. Sherman Christensen did not specifically rule on whether the 25 documents in question actually contained trade secret information.

But he said there had been "insufficient showing" by CIA to justify the release of the requested documents to it at this time. "Specifically because all the documents in question together with a vast number of others doubtfully will be introduced in evidence and thus become public in any event during the early stages of the trial."

IBM, Iel Agree on 30s

SAN FRANCISCO — IBM has agreed to maintain on a worldwide basis IBM 360/30s with Iel Corp./Advanced Memory Systems, Inc. add-on memory beyond IBM limits.

Under the agreement, IBM will extend to all countries — where it has Model 30 service capabilities — service on the same basis as in the U.S.

In addition, IBM agreed to pay Iel 97% of court costs and expenses incurred in a West German trial on this issue [CW, Feb. 14]. Iel, in return, agreed to withdraw the judgment of the German court and its appeal in France.

Supershorts

Pitney Bowes Data Systems Ltd., a newly created subsidiary of Pitney Bowes, will market electronic point-of-sale and related systems in Europe. Operational and marketing headquarters will be in London.

Eldorado Computer Corp. has obtained U.S. marketing rights for Hermes Products, Inc. systems equipment.

Tally Corp. has signed an OEM agreement with Hewlett-Packard, S.A. of Brussels, Belgium, for the sale of Tally Series 2000 Line Printers for use in HP computer systems for the wholesale and retail distribution industry.

Digital Information Devices, Inc., has appointed Data Dynamics Ltd. as its exclusive representative in Great Britain and 12 countries in Europe, and non-exclusive representation in seven other nations including Scandinavia.

Pertec Corp.'s 3700 computer output microfilm readers will be marketed by Synergraphics Inc., a microfilm service subsidiary of Transamerica Corp.

DP Doors Should Open in 1977

Japan Makers OK Liberalizing Imports

By E. Drake Lundell Jr.

OF THE CW STAFF

TOKYO — Japanese computer manufacturers have reportedly agreed to cooperate with government plans to liberalize the importation of DP equipment starting in 1977. In return, the government has promised increased support for their domestic operations.

The agreement announced here last week called for the heavy supports in order to offset the increased competition from foreign computer makers, especially Americans.

It also contains an escape clause which would permit the Japanese to reimpose heavy import restrictions if the competition became too heavy.

In addition, the agreement would liberalize the rules for the imports of integrated circuits starting in 1975, sources said.

Under present regulations it is very difficult for an American importer to get permission to import equipment into Japan and the present regulations effective

tively ban any imports if the foreign share of the market reaches over 50% of the market in any one year.

The new liberalized rules were agreed to by the Japanese computer industry after reportedly heavy political pressure had been placed on it by the U.S. Government, which is upset over the restrictive regulations — particularly in view of the recurring dollar crises and the Japanese balance of payments surplus resulting from Japanese exports to the U.S.

Payoff

Up to now the Japanese computer industry has been receiving from its government around \$510 million yearly for research and development support. But under the new arrangement it would get an additional \$200 million yearly in return for its agreement to allow the liberalization in the rules regulating the importation of computer mainframes.

The industry would also receive around \$200 million in the form of loans to the Japan Electronic Computer Co., the fi-

nancing arm for the Japanese industry.

The Japanese industry would also receive around \$30 million for research and development work in software and approximately \$20 million for integrated circuit research.

Market Potential

The Japanese computer market is one of the fastest growing in the world, according to International Data Corp. (IDC), a market research firm that estimates the use of computers in Japan has been growing at an annual rate of 40% for the past six years.

In addition, IDC estimates the Japanese market will continue to grow at an "above average" rate for the next few years.

U.S. manufacturers have been frustrated in efforts to penetrate the Japanese market since the Japanese Government considers its fledgling computer industry a national resource and has erected trade barriers to protect it, in addition to providing large subsidies to support research and development efforts.

"This is a case of too little too late," one industry source indicated last week. With all of those subsidies for research and development, he indicated, "the Japanese industry is going to be pretty strong by the time they open the door to us. It may be impossible to compete then anyway on their own ground," he said.

The new agreement does not ease the "buy Japan" policy of the government in any way, several sources observed.

Adapso Asks Permanent Exclusion Of IBM From Data Center Sector

By Molly Upton

OF THE CW STAFF

NEW YORK — The Association of Data Processing Service Organizations (Adapso) has submitted a position paper to the Justice Department calling for the permanent exclusion of IBM from the data center business.

Under the terms of the settlement with Control Data Corp. involving the sale of the Service Bureau Corp., IBM agreed to withdraw from the data center business for a period of six years.

The paper noted that Adapso Data Center Service believes the transfer of the Service Bureau Corp. should "resolve the special tie-in problems of its segment, provided:

- "The complete separation is formalized by court decree, so that it is not subject to later change by private action."

- "It is made permanent and not limited to the six years which IBM has consented to stay out of the data center segment."

- "It is made clear that IBM's exclusion from the furnishing of data center services is complete and includes commercial and scientific DP services; batch processing; remote job entry processing; time-sharing services; data preparation services; and facility management operations."

- "Such exclusion should also prohibit the supply of any 'back-door' entry into the data processing services industry," the paper stated.

This paper is the second submitted to Justice by Adapso in its efforts to advise

Justice in the pending litigation against IBM [CW, Feb. 28].

The association's "general position" urges the elimination of "IBM" or linking together of separate products and activities of IBM and other manufacturers.

Reaction to IBM Lease

Lessors Say Prices Still Lower

By a CW Staff Writer

NEW YORK — Leasing companies tentatively welcomed IBM into the long-term leasing business last week by pointing out their prices were still lower than the new ones offered by IBM, which dropped the overtime usage charge on all virtual 370s.

At the same time, they noted the IBM move to give users a four-year lease indicates IBM is "blessing" the concept of leasing, a move they said might potentially open up new markets for them among users who had previously shied away from the concept.

"We are still very competitive with IBM even without the overtime charges," one leasing company vice-president said. However, he admitted the shorter term leases were not as competitive without the overtime charges from IBM as they had been before.

Previously, he noted, leasing companies had figured the overtime charges as part of the IBM rent when making comparisons with their lease rates. "What used to be a 40% advantage for us," he noted, "is now a smaller advantage,

around 20% to 25%."

"On the longer term deals we could beat the IBM straight rental price; the overtime charges just served to make us look even better than we were on the straight monthly rental plan," he said.

"If users start thinking in terms of signing up for longer deals that is now encouraged by IBM, then we should be able to pick up some business. After all, if they have made the decision to save the overtime charges by turning to a four-year deal from IBM, why wouldn't they decide to save an additional 20% to 30% by signing up for a five-year deal with one of the leasing companies?"

Still another leasing executive also saw the IBM plan as a help to the third-party leasing companies.

"For years," he said, "IBM has been pushing short-term leases so that the user wouldn't, IBM said, be stuck with obsolete equipment. With the new plan, however, they are in essence assuring users that the equipment will have a life of at least four years, thereby taking the onus away from long-term leases."

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'Technology, Not Labor, the Key'

World Trade Head Defends Multinational Cause

By E. Drake Lundell Jr.

Of the CW Staff

WASHINGTON, D.C. — IBM rolled out one of its big guns here last week to defend multinational corporations like itself from a combined congressional and labor attack.

Gilbert E. Jones, chairman of the IBM World Trade Corp., contended that multinational corporations were not in fact exploiting jobs but rather that the overseas operations helped to create jobs in the U.S.

This position is essentially backed by the Nixon Administration, but a coalition of Democratic congressmen and organized labor has attacked the multinationals claiming the firms move plants to areas where labor is cheaper and thus deprive U.S. workers of jobs.

This coalition also claims that by manufacturing at plants overseas the multinationals — like IBM — don't contribute as

much as they could to U.S. exports.

IBM was called to testify because in the words of Sen. Abraham Ribicoff (D-Conn.), head of the Senate Subcommittee on International Trade, "when one thinks of multinational companies, one immediately thinks of IBM."

Crossroads

"There is no mistaking the fact," Jones told the senators, "that we have come to a crossroads in the evolution of American foreign policy. Decisions that will be made in the next few months by the Congress will affect future domestic and international economic patterns in fundamental ways."

With mounting criticism of the activities of multinational firms, Jones said it was time for firms such as IBM — which do business on a multinational basis — to "confront" the critics.

Jones claimed the greatest strength of

U.S. business was the fact that it held a technological edge over business in other countries and that by maintaining this edge it would be able to compete effectively.

In high technology industries such as the computer industry, he said, the labor content of the equipment was not the major factor, but rather technical innovation was.

Therefore, he noted, "the key for successful governmental policy is the creation of a climate which will encourage innovation and improvement in American industry, not sheltering it from competitive forces," through tariff restrictions or other means.

Congress should "avoid thinking in terms of days gone by, when handicrafts and high labor content were the general rule in American plants," the IBM executive said.

"Rather, we should think in terms of the '70s and the '80s when our ability to compete will depend primarily on our technological innovation, our creative abilities and our leadership."

He noted that on previous occasions it had been estimated that one out of every eight jobs at IBM in the U.S. was directly related to export business, but stated that in 1972 one out of every five IBM U.S. jobs was directly related to overseas operations.

Investment Reality

And, Jones contended, "there is absolutely no way in which we could have held onto our markets overseas, and increased U.S. jobs these last dozen years, if we had refused to invest in foreign facilities."

This is because many overseas governments would not allow themselves to drain their foreign reserves in order to import all of the equipment that they presently buy from IBM plants overseas, he said.

Although Jones admitted that "I cannot prove it to you scientifically, if IBM tried to sell the world market entirely from the U.S., our business abroad would shrink to a very small fraction of its present size," he said.

"The choice for us is not between exporting or manufacturing abroad, but between manufacturing abroad or losing large portions of the world market."

In addition, Jones said that out of the 115,000 persons employed by World Trade, only 27,600 were in manufacturing positions, and therefore if all manufacturing was done in the U.S. it would only add that many jobs to the rolls.

Block Future?

Jones concluded that if U.S. legislation should "handicap American computer manufacturers in their overseas operations, the technology gap that still favors the Americans would tend to close. Foreign manufacturers eyeing expanded markets — including the U.S. — would be helped. The damage done to the U.S. economy would be considerable, perhaps irreversible.

"In our view, the proper response is legislation that looks toward the elimination of trade barriers, including, and most importantly, non-tariff barriers that discriminate against U.S.-owned companies operating abroad," he said.

"Far from treating U.S.-foreign investment as a threat, we must regard it as an important national resource that can provide U.S. exports, U.S. jobs, surpluses for the U.S. balance of payments and technology essential for progress in the U.S."

IBM Denies Charge Of Dollar Speculation

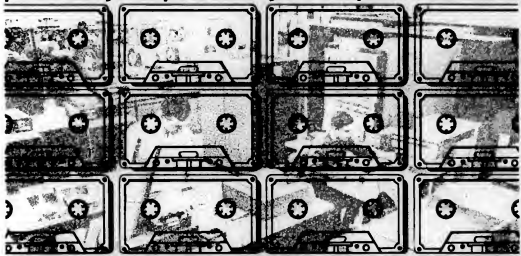
WASHINGTON, D.C. — One of the most serious charges against multinational companies concerns the speculative use of their reserves of currency overseas which puts pressure on the U.S. dollar.

When speculation on the dollar was at its height recently, the former finance minister of West Germany, Karl Schiller, was quoted on CBS News of accusing IBM of selling dollars for German marks, in effect helping drive the price of the dollar down in international markets.

IBM denied the charge and earlier in the day, IBM World Trade Corp. Chairman Gilbert E. Jones had told a Senate panel that IBM refused to speculate in world currencies in order to make a profit on the decline of the dollar overseas.

However, several sources have wondered whether a large multinational firm would not be forced to do some speculating just in order to protect its stockholders' investments.

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GSA Awards 370 Contracts

Memory Bids 60%-70% Off IBM Price

By a CW Staff Writer
WASHINGTON, D.C. - Substantial price reductions marked the latest round of bidding for add-on and replacement memory contracts with the General Services Administration here.

And when the dust had cleared, Memory Technology, Inc. won the award for replacement memory on IBM 370/155 while Ampex landed the order for memory on the government's 370/165s.

In order to get the 155 bid, Memory Technology offered the government 262K of semiconductor memory for the 155 at a price of \$55,570, which is 60.6% off the original IBM price for the same increment of memory.

The bidding was even tougher in the 165 area; Ampex had to take 70.5% off the original IBM price in order to get the bid at \$83,510 for one 512K increment of core memory.

Under the requirements-type contracts, any government

agency that does business through the GSA must purchase either the Ampex or Memory Technology type of memory if it wishes to replace or add memory onto its system.

Earlier Award

While this is the first big government award for Memory Technology, Ampex shared an

earlier GSA award with Cambridge Memories, Inc. for replacement and add-on memory for the 360/30, 40, 50 and 65 computers as well as the Univac 1106 and 1108 (CW, Feb. 28).

To get that bid, the firms offered prices that were 76% to 88% off the original IBM prices for the equivalent types of memory.

Six European Firms Share in Pact From Space Research Organization

DARMSTADT, W. Germany - Six European computer firms will share in contracts recently announced by the European Space Research Organization (Esro).

ICL, Siemens, Compagnie Internationale pour l'Informatique (CII), Logica, Sega and AEG-Telefunken were chosen to provide a real-time system for the European Space Organization

Center here.

IBM is the existing supplier to Esro.

ICL is scheduled to supply a number of System 4-72s, while Sega and Logica will direct project management and provide software and special hardware.

The real-time system will be based on two CII 10070s and six Siemens 330 systems.

The CII units will process all control and experimental information generated by a satellite, while the Siemens computers will generate information on graphic displays and handle experimental data acquisition from the satellite.

Aussies Keep Tariff

CANBERRA, Australia - The Federal Cabinet has decided to defer any amendment to the tariff on CRT display terminals while the Tariff Board considers the position of the electronics industry overall, according to Lance H. Barnard, acting prime minister.

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CIA Expands Membership Base

LOS ANGELES - The Computer Industry Association has broadened the base of its membership with eight new members.

"I am very happy to add that it is no longer possible for CIA to be considered an association of peripheral companies," noted President Dan L. McGurk.

"Our membership includes companies from the software, hardware and processor segments of the industry. We expect to expand still further to

include as broad a representation as possible," he added.

With the new members, CIA picked up representation from the minicomputer segment, General Automation; the software area, with Informatics and Foresight Systems, Inc.; as well as component and peripherals makers. Other new members are Advanced Memory Systems, Cambridge Memories, Inc., Xytec Corp., Applied Magnetics and Information Magnetics Corp.



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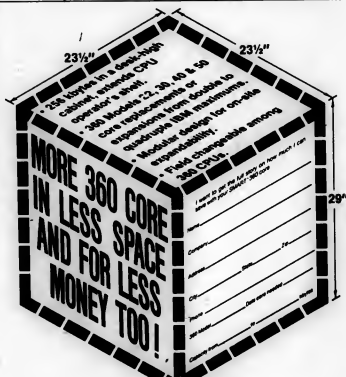
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Contracts

The Potomac Electric Power Co. has awarded a \$10 million contract to System Monitoring Division of Rockwell International Corp. to develop a computer-based energy control system. The system will monitor and control the utility's entire generation and transmission network.

Commonwealth Edison Co., Chicago, has engaged Control Data Corp.'s Professional Services Division to help develop a computerized system for the accountability of nuclear reactor fuel assemblies. The system will provide Edison with a computerized library of current and historical data on the firm's assemblies.

The Department of Defense has asked Medlab Computer Services, Inc. to install a \$1 million clinical laboratory information system at the Bethesda (Md.) Naval Hospital. The contract also provides the Navy with options on two additional systems.

Data Transmission Co. (Detran) has

awarded contracts to Burroughs Corp., Comten, Inc. and Paradyne Corp. for the construction of its nationwide digital data communications network. Detran declined to announce the value of the multimillion dollar awards.

Burroughs will provide the customer terminal interface unit and the fault alarm and control system. Comten will manufacture the stored program computer switch controller. Paradyne was selected to make 4,800/9,600 bit/sec modems and installer test sets.

The Business Data Systems Division of Northrop BSL has contracted with Microdata Corp. for its 1600 Series minicomputers. The minis will be the heart of BSL's real-time business data system, the BDS 2000 Series.

Western Union Telegraph Co. has awarded a contract to International Communications Corp., a Milgo subsidiary, for 2,000 modems. One application of the modems will be Western Union's new Multipoint Data Service.

Evolution the Key

AJ Looks at Data Entry Market

By E. Drake Lundell Jr.

On the CW staff
MOUNTAIN VIEW, Calif. — Even though the firm is best known for acoustic couplers, the majority of Anderson Jacobson's (AJ) business in terms of dollars is in the terminal area and the firm is presently taking a close look at the data entry portion of the market.

But whatever moves the firm makes in this area will be on an evolutionary basis; that is, new products will be designed to take advantage of features of present ones, much like the firm's entry into the terminal field, according to Gerry Schoenwald, director of marketing.

The firm got into the terminal business because some customers on their own were integrating the Anderson Jacobson acoustic couplers with teletypewriters so the firm decided to do it for them.

But as the terminal market grew, the firm then added more and more of its own electronics and other parts to the

basic system, so that now its latest terminal, the 630, is a 100% Anderson Jacobson product from thermal printer through coupler.

"We moved into the terminal business because it broadened our base," Schoenwald said, "and because it was a natural move up."

Overpopulation

The acoustic coupler business, he said, was extremely crowded and very price-competitive because almost anyone could get into the field without a major investment.

But, he added, it was much harder to become a terminal company and therefore the number of competitors, while large, was not as large as in the coupler business.

Presently, he said, couplers and modems only account for around 10% of the firm's business on a dollar basis with the rest coming primarily from the terminal area.

The firm's entry into the data entry marketplace will probably come about in the same way, Schoenwald indicated, if it decides to get into the market.

The firm is presently marketing one cassette recorder and is working on the development of a "high-performance" unit that should be ready before the end of the year.

Parts Are There

The combination of these devices with the equipment used in putting together the firm's terminal line could be used to make either data entry or data acquisition systems, Schoenwald related.

The major need would be software, and this is an important consideration when entering the data entry field, Schoenwald stressed, and a firm has to make a choice between offering generalized packages or customizing systems for specific applications.

Even though Schoenwald emphasized that the firm had "just started looking at the data entry area," he indicated that modular systems might be the best product in the future.

For example, he said a firm might want to offer a system that could either have cassettes for data storage or, optionally, a floppy disk for storage. Then the user could choose the system that best met his particular needs.

In other areas, Schoenwald noted the firm was planning basically to expand its terminal lines with higher speed or more capable units, with the area of remote batch terminals under study.

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Sanders Doubles Quarter, Half Earnings

NASHUA, N.H. — Sanders Associates, Inc. doubled its earnings in the second-quarter and six-month periods ended Jan. 26 compared with comparable periods last year.

"Results for the first six months confirm our confidence that we will achieve our goals for fiscal 1973 — increased sales and significant profit improvement quarter by quarter through the year," observed President Royden C. Sanders Jr.

In the quarter, Sanders earnings reached \$1.1 million and earnings a share compared with \$559,000 or 12 cents a share in the year-ago period.

Special credits totaled \$318,000 in fiscal 1973 compared with \$113,000 last year. Revenues rose 19% to \$43.1 million compared with \$36.6 million. Revenues have risen for six consecutive quarters, the firm noted.

For the half, Sanders earnings totaled \$2.1 million or 46 cents a share compared with \$1 million or 22 cents a share in the year-before period. Sales climbed to \$81.8 million from \$66.2 million in the same period last year.

SEL Earnings Drop on Revenue Gain

FORT LAUDERDALE, Fla. — Systems Engineering Laboratories, Inc. experienced a decline in six-month earnings and an increase in revenues.

With a heftier special credit of \$349,709 or 13 cents a share, earnings totaled \$339,390 or 20

cents a share in the period ended Dec. 29, compared with \$381,212 or 23 cents a share last year, when the special credit was \$201,832 or 8 cents a share. Revenues rose slightly to \$7.6 million from \$7.1 million in the comparable year-ago period.

Revenues Rise For Vermont

N. SPRINGFIELD, Vt. — Vermont Research Corp. saw first-quarter revenues rise in the period ended Dec. 31.

Revenues climbed to \$1.4 million from \$1.3 million a year ago, while earnings, boosted by a \$793,000 credit, totaled \$307,000 compared with \$115,000 in the same period last year. The credit resulted from the sale of securities of Consolidated Computer, Inc.

Vermont has completed the acquisition of OMI Memories, Inc., which has developed a prototype moving-head disk.

Operating expenses of the new unit, called VRC California, will be written off as incurred, according to President Hugh M. Tarr.

"Also, it will be some time before any significant revenues will be derived from sales of this moving-head disk product," he said.

The immediate net effect of the merger will be a substantial reduction in our earnings in the second quarter ending March 31, and succeeding quarters, until disk sales can be achieved in some volume," he added.

Simplicity Heralds Fourth Record Year

NEW YORK — Simplicity Computer Corp. continued its streak of reporting record sales and earnings for its fourth consecutive year.

Leasing accounted for about 40% of revenues, up from 30% last year, and a "sharply higher percentage of our profits," according to President Louis Morad. Simplicity specializes in the long-term leasing of IBM 360/20's and other small satellite computers.

The firm's DP subsidiary, Babage Systems, Inc., also contributed to earnings. Earnings for the year rose 75% to \$177,293 or 35 cents a share from \$102,959 or 21 cents a share last year. Revenues rose 35% to \$2.8 million from \$2.1 million in 1971.

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Fixed-Price Contracts Blamed

2 Software Firms Show Charges

Losses on fixed-price software contracts were reflected in the nine month reports of Informatics Inc. and Cybermatics Inc., however, reported increased earnings for the period, while Cybermatics reported a loss.

Nine month earnings and revenues were improved at Informatics compared with the year ago period, when a loss of 7 cents a share from discontinued operations was included.

Earnings totaled \$349,000 or 23 cents a share compared with \$296,000 or 19 cents a share in the year-ago period. Revenue rose to \$13.3 million from \$12.7 million.

"Especially good progress has been made in volume growth in the commercial areas of communications and software products, and in the civilian agency

government sector," observed President Walter F. Bauer.

Performance in all areas increased significantly since last year except revenues from three Nasa contracts, he said.

A provision of \$55,000 to cover estimated losses on a large fixed-price contract scheduled for completion in the fall was included in the period, the company said.

Two Contract Losses

At Cybermatics, the loss of \$662,150 or 66 cents a share on revenues of \$5.7 cents for the nine months ended Dec. 31 resulted from a \$216,575 provision for losses on two fixed-price contracts, as well as \$210,599 in non-recurring charges to income. Changes in accounting procedures were also reflected in a \$242,822 charge.

Pitney Bowes Absorbs \$1.4 Million Charge for POS Unit in 4th Period

STAMFORD, Conn. — Pitney Bowes has begun to write off its share of the charges for jointly-owned Pitney Bowes-Alplex, Inc., maker of point of sale systems, but Pitney Bowes' overall profits were more than sufficient to absorb the \$1.4 million charge for the fourth quarter and year ended Dec. 31.

However, for the first quarter of 1973, President Fred T. Allen sees earnings "about the same" as those of the comparable year-ago period. Operating earnings are expected to rise, and revenues should be up 10% to 15% from \$76.1 million in the first quarter of 1972.

The \$1.4 million special charge reflects Pitney Bowes' first quarter share of \$18.6 million in operating losses and charges for the amortization of the previously deferred startup costs of Pitney Bowes-Alplex.

Fourth quarter earnings totaled \$4.5 million or 34 cents a share.

In the previous year the firm earned \$216,717 or 20 cents a share on revenues of \$4.6 million.

Cybermatics changed its policy of accounting for research and development expenses from a deferral method to a current expense method.

After three quarters of significant losses, the Software Division returned to profitability in the month of January, the firm said. Cybermatics' participation in the continuous computer forms and pressure sensitive labels businesses accounts for about two-thirds of consolidated revenues, observed President J. Roy Morris.

Morris added he expects Cybermatics to return to profitable operations during the fourth quarter and during the next fiscal year.

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Nickels & Dimes

Computer Machinery has reduced its line of credit with Security Pacific National Bank and First National City Bank to finance U.S. leases. Under a new agreement, CMC may borrow up to \$15 million through February 1974, including loans outstanding under the old agreement, which had an upper limit of \$20 million.

\$\$\$ Lots of activity in the stock splitting department: Datapoint stock had a reverse split of 1 for 2; Data General stock will split 3 for 1 by late March 1974; and Texas Instruments shareholders vote April 18 on a 2 for 1 split.

\$\$\$ In the name game, Computing & Software is now Cordura.

\$\$\$ Computer Financial, now Lenox International, posted record nine month earnings for the period ended Dec. 31, and attributed the rise primarily to increased demand for disk packs.

\$\$\$ Electronic Memories & Magnetics will pay a preferred share dividend of 25 cents March 10 to shareholders of record March 2. The dividend has been omitted since the fourth quarter of 1971.

\$\$\$ Graham Packaging declared a 3% stock dividend to shareholders of record Feb. 23.

\$\$\$ On-Line Systems common stock will split three-for-two payable March 7 to shareholders of record Feb. 14.

\$\$\$ Western Digital, circuit and test system maker, passed the break even point for monthly operations during the quarter ended Dec. 31, and cut its losses for the period by 59% from the year-ago period to \$139,887.

\$\$\$ Scan-Data has recorded third-quarter shipments of nine systems.

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GTE Information Systems Inc. has acquired EDP Resources Inc.'s 75% interest in EDP Resources Deutschland AG, West Germany, for \$3.4 million.

Mathematical Applications Group, Inc., Elmsford, N.Y., has acquired the Swedish firm of Stroede, AB, through its wholly owned Swedish subsidiary, Industri-Matematik, AB, based in Gothenburg, provides complete mailing and computer services.

Network Data Processing Corp. of Cedar Rapids, Iowa, has purchased all the payroll account business from Data Services, of Iowa, Inc.

Itel Corp. has agreed in principle to acquire First National Indemnity Co., a Texas insurance company in the mortgage guaranty field, for an undisclosed amount of common stock.

William Marion Co. Inc. of New York City has acquired all the inventory and leases of E.D.P. Leasing Corp.

Charterhouse Canada has agreed to acquire a significant minority interest in Comma Services, Ltd.

Computerworld

Stock Trading Summary

Computerworld

Stock Trading Summary

CLOSING PRICES THURSDAY, MARCH 8, 1973

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Q COMPUTER TASK GROUP	1-2	2 1/2	0	0.0	N DIGITAL GROUP CORP	30-131	18 1/2	+1/8	+0.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Q COMPUTER USAGE	6-14	6 1/2	+1/4	+0.1	N DIGITAL EQUIPMENT	72-105	89 1/4	-1 1/2	-1.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Q COMPUTING & SOFTWARE	20-24	23 5/8	-1/4	-0.5	N ELECTRONIC ASSOC	6-13	6 5/8	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Q COMSESS	3	3 1/8	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Q CONSHANE	9-10	6 7/8	-1/4	-3.5	A ELECTRONIC ENGINEER	6-14	9 1/4	+1	+12.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Q DATATAP	4-9	3 1/4	-1/4	-7.1	N PERFORM	25-41	29 1/2	+2 1/2	+0.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
A EJECT COMP PROG	1-5	1 1/2	0	0.0	Q GTE COMPUTER CORP	2-5	7 1/8	+1/8	+0.2	N ELECTRONIC DATA SYS.	43-65	52	+3 3/8	+0.4	N HILFELT-PACKARD INC	6-9	9 1/8	+1/4	+0.4	N INFORMATICS	3-11	5 1/8	+1/8	+0.3	N HONEYWELL INC	106-170	108 1/4	+2	+1.8	Q I&L&A DATA CORP	1-3	3 1/4	+1	+20.0	N IBM	333-435	404 1/2	+15 1/2	+1.1	COMPUTER PERIPHERALS										Q KEANE ASSOCIATES	4-7	3 3/4	0	0.0	Q INTERDATA INC	8-16	9 5/8	+1/4	+2.6	Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0					
N ELECTRONIC DATA SYS.	43-65	52	+3 3/8	+0.4	N HILFELT-PACKARD INC	6-9	9 1/8	+1/4	+0.4	N INFORMATICS	3-11	5 1/8	+1/8	+0.3	N HONEYWELL INC	106-170	108 1/4	+2	+1.8	Q I&L&A DATA CORP	1-3	3 1/4	+1	+20.0	N IBM	333-435	404 1/2	+15 1/2	+1.1	COMPUTER PERIPHERALS										Q KEANE ASSOCIATES	4-7	3 3/4	0	0.0	Q INTERDATA INC	8-16	9 5/8	+1/4	+2.6	Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0															
N INFORMATICS	3-11	5 1/8	+1/8	+0.3	N HONEYWELL INC	106-170	108 1/4	+2	+1.8	Q I&L&A DATA CORP	1-3	3 1/4	+1	+20.0	N IBM	333-435	404 1/2	+15 1/2	+1.1	COMPUTER PERIPHERALS										Q KEANE ASSOCIATES	4-7	3 3/4	0	0.0	Q INTERDATA INC	8-16	9 5/8	+1/4	+2.6	Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																									
Q I&L&A DATA CORP	1-3	3 1/4	+1	+20.0	N IBM	333-435	404 1/2	+15 1/2	+1.1	COMPUTER PERIPHERALS										Q KEANE ASSOCIATES	4-7	3 3/4	0	0.0	Q INTERDATA INC	8-16	9 5/8	+1/4	+2.6	Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																			
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Q KEANE ASSOCIATES	4-7	3 3/4	0	0.0	Q INTERDATA INC	8-16	9 5/8	+1/4	+2.6	Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																							
Q KEYDATA CORP	7-13	8 1/8	+1/8	+1.4	N KIRKBY	10-30	10 1/8	0	0.0	Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																	
Q LOCKPORT	4-9	5 5/8	0	0.0	Q KRYPTONITE CORP	4-10	4 1/4	0	0.0	A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																											
A MANAGEMENT DATA	3-10	3	-1/4	-7.6	N NCR	27-38	30 1/8	+1 3/8	+1.1	Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																					
Q NATIONAL CSS INC	8-41	38 1/2	+5/8	+17.5	N NORTHERN CORP	27-47	30 7/8	+1 3/8	+4.4	Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																															
Q NATIONAL INFO SVCS	1-5	1 7/8	0	0.0	N SUPPLY HAND	30-37	43 3/8	+2 1/4	+1.7	P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																									
P OX LUN SYSTEMS INC	15-16	15 5/8	+2 5/8	+16.7	A SYSTEMS ENG. LABS	4-16	5 3/4	+1 3/4	+0.7	COMPUTER PERIPHERALS										N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																			
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N PLANNING RESEARCH	4-17	3 3/4	-3/8	-0.9	N VARIAN ASSOCIATES	14-29	15 5/8	+1 3/8	+11.6	Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																							
Q PROGRAMMING METHODS	20-28	23 1/2	+1/8	+0.5	N VANG LAM	27-61	23 5/8	+5/8	+2.7	Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																	
Q PROGRAMMING & SYS	1-2	1 1/2	0	0.0	N VARIO CORP	17-172	186 1/4	+7 1/8	+0.4	Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																											
Q RADIOSA INC	5-27	20	-1 1/4	-5.8						Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																					
Q SCIENTIFIC COMPUTERS	1-4	1 1/2	+1/4	+20.0						Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																															
Q SIMPLICITY COMPUTER	1-5	2 3/8	-1/2	-12.3						Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																									
Q TRS COMPUTER CENTERS	3-6	3 1/4	0	0.0						COMPUTER PERIPHERALS										Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																			
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Q TCC INC	1-3	3 1/4	-1/8	-3.3						Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																							
Q TRANSFORMER INC	7-12	8 1/8	+3/4	+0.5						Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																	
Q UNITED DATA CENTER	8-5	5 1/2	+1/4	+0.7						Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																											
Q VENTURES COMPUTING	7-26	9 1/8	0	0.0						A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																					
A VPS SYSTEMS	6-10	5 5/8	0	0.0						COMPUTER PERIPHERALS										N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																															
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N ARPS-SOFTWARE-MULT	23-48	34	+1	+1.1						N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																			
N ADVANCED MEMORY SYS	17-23	18 1/4	+1 5/8	+0.7						Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																													
Q ELECTRONIC M & M	6-15	5 3/8	-3/8	-0.6						Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																							
Q HENDERSON JACOBSON	4-6	3 1/4	0	0.0						Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																	
Q REHIVE MODEL FILEC	1-8	7	+1/4	+0.7						A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																											
A MULTIREAD & NEW	5-21	8 1/2	+1/4	+0.5						N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																					
N SIBIR-KRAMI	7-14	6 7/8	-5/8	-6.3						COMPUTER PERIPHERALS										A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																															
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A CALCUM	9-25	11 3/4	+1/4	+2.1						Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																			
Q CAMERON HUBBERS	7-15	11 1/8	+5/8	+0.8						Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																													
Q CENTRINICS DATA CORP	2-27	12 1/2	0	0.0						Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																							
Q CONY CORP	6-24	14	+1	+7.6						Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																	
Q CROUCHES	4-1	1 1/2	0	0.0						Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																											
Q COMPUTER COMMUN.	7-12	3 3/8	-1/8	-0.8						Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																					
Q COMPUTER EQUIPMENT	2-4	2 1/4	+1/4	+12.4						COMPUTER PERIPHERALS										Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																															
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Q COMPUTER MACHINERY	7-13	11	+7/8	+6.6						Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Q COMPUTER TRANSFER INC	2-6	2 1/8	-1/8	-4.2						Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Q COMPUTER	3-6	1 1/2	0	0.0						N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
N COMBAC CORP	24-30	26 1/4	+3/4	+1.1						A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
A DATA PRODUCTS CORP	7-12	3 3/8	0	0.0						Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Q DATA RECOGNITION	1-5	2 1/2	0	0.0						Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Q DATA TECHNOLOGY	2-5	3 7/8	0	0.0						COMPUTER PERIPHERALS										Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Q OLAN CONTROLS	3-8	3 3/8	0	0.0						Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Q ELECTRONIC M & M	2-4	3 7/8	-1/4	-0.4						Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Q PARI-TEK	2-4	3 3/8	-1/8	-3.4						Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Q GENERAL COMPUTER SYS	8-16	11 1/4	+1/4	+0.7						N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
N GENERAL ELECTRIC	50-76	76 1/4	+2	+3.0						N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
N HAZELTIN CORP	7-13	6 3/4	+1/4	+5.5						Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
Q INOREX INC	4-16	16	+3/8	+2.1						COMPUTER PERIPHERALS										Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Q INFORMATION DISPLAYS	1-5	5 7/8	0	0.0						Q INFORMATION INTL INC	4-25	11 1/2	0	0.0						A LUNDY ELECTRONICS	6-14	21 3/4	+1/4	+3.6						Q MANAGEMENT ASSIST	2-1	1 1/2	0	0.0						A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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A MILCO ELECTRONICS	15-44	17	+3/4	+3.7						N MINIMAX DATA SCI	8-27	27 1/2	+1/4	+0.1						Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Q NOC COMPUTER SYST.	3-12	4 1/4	+1 3/4	+14.4						COMPUTER PERIPHERALS										Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Q OPTICAL SCANNING	2-16	4 1/4	+1	+10.7						Q PERTEC CORP	5-17	6 1/4	+1	+19.0						Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Q PHOTON	4-21	6 1/2	+1/2	+17.8						Q POTTER INSTRUMENT	4-21	6 1/2	+1/4	+4.0						Q PERCISON INC.	2-13	4	-1/4	-5.8						Q RECOGNITION EQUIP	3-12	3 3/4	0	0.0						N SANDPERS ASSOCIATES	11-21	21 1/2	+1/4	+2.1						COMPUTER PERIPHERALS										Q SCAN DATA	3-13	2 7/8	0	0.0						Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Q STORAGE TECHNOLOGY	17-30	22 1/2	+2 1/2	+12.5						Q SYCOM INC	7-11	9	+1/2	+4.8						Q TALLY CORP	8-14	9 5/8	-3/8	-7.7						Q TETRAID INC	34-46	47	+1/4	+0.1						N TELEX	4-14	5	+1	+2.0						Q VITEK INC	17-24	23 1/2	+1/4	+1.6						COMPUTER PERIPHERALS										Q MULTIMORE SUB FORMS	5-9	5	-1 3/4	-15.0						A BARRY WEIGHTS	9-14	9 1/4	+5/8	+7.2						A DATA ORIENTED	17-26	18 1/2	-1/4	-1.1						N DUPLEX PRODUCTS INC	8-16	16 1/4	+1/4	+5.7						N FINNIS SUB. FORMS	6-10	10 3/8	-1/4	-3.9						Q GRAHAM MAGNETICS	15-27	27 1/2	+1/2	+1.8						Q GRAPHIC CONTROLS	11-15	11 1/8	-1/4	-2.1						COMPUTER PERIPHERALS										N 3M COMPANY	70-88	85	+5 1/4	+6.5						Q MOORE COMP LTO	42-57	55 1/2	+1/2	+0.9						Q MAXMUM CORP	46-52	52 1/2	+1/4	+0.4						Q REYNOLDS & REYNOLD	37-77	49 3/4	+2 1/8	+6.4						Q STANFORD REGISTER	14-20	17 3/4	0	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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All statistics
compiled, computed
and formatted by
TRADE-QUOTES INC
Cambridge, Mass 02138

Earnings Reports

BUNKER RAMO	Year Ended Dec 31	1972	1971
Shr End	252,000,000	224,650,000	8.59
Earnings	13,500,000	4,296,573	0.09
3 Mo Shr	250	250	0.06
Revenue	64,200,000	57,929,633	33.00
Earnings	4,800,000	1,776,594	0.09

a-Preliminary.

COMPLYONE	Three Months Ended Dec 31	1972	1971
Shr End	1974	1974	1971
Revenue	7,213,634	5,709,245	0.00
Earnings	167,154	131,507	0.00

COMPUTER DATA SYSTEMS	Six Months Ended Dec 31	1972	1971
Revenue	1,000,100	659,400	0.00
Text Cred	45,100	10,300	0.00
Earnings	115,800	33,000	0.00

TELEX	Three Months Ended Dec 31	1972	1971
Shr End	8.22	8.06	8.06
Revenue	26,542,000	16,629,000	0.00
Earnings	3,458,000	31,177,000	0.00
3 Mo Shr	22	22	28
Revenue	67,485,000	60,870,000	0.00
Earnings	2,277,000	2,885,000	0.00

AUTOMATIC DATA PROCESSING	Six Months Ended Dec 31	1972	1971
Shr End	5.59	5.41	5.41
Revenue	3,584,000	31,177,000	0.00
Earnings	34,500	2,340,000	0.00

DATA DOCUMENTS	Three Months Ended Dec 31	1972	1971
Shr End	8.52	8.45	8.45
Revenue	7,847,588	6,610,177	0.00
Text Cred	115,800	1,007	0.00
Earnings	24,095	211,166	0.00

DATA PRODUCTS	Nine Months Ended Dec 31	1972	1971
Shr End	8.18	8.07	8.07
Revenue	41,834,000	36,840,000	0.00
Disc Op	14,000	(135,000)	0.00
Text Cred	285,000	0.00	0.00
Earnings	1,209,000	488,000	0.00

AGS COMPUTERS	Nine Months Ended Sept 30	1972	1971
Shr End	5.19	5.06	5.06
Revenue	936,540	806,076	0.00
Disc Op	25,572	(25,572)	0.00
Earnings	61,267	26,685	0.00

ELECTRONIC DATA SYSTEMS	Three Months Ended Dec 31	1972	1971
Shr End	27.45	20.26	20.26
Revenue	3,585,000	2,970,952	0.00
6 Mo Shr	55,252	41,735,177	0.00
Earnings	6,754,558	5,715,587	0.00

REYNOLDS & REYNOLDS	Three Months Ended
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Hazeltine 2000 has IMPACT!

Hazeltine Corporation

Computer Peripheral Equipment
Greenlawn, N.Y. 11740 (516) 549-8800

EAST: NEW YORK (212) 596-1970 □ BOSTON (617) 598-8700
EDISON, N.J. (201) 828-5676 □ PHILADELPHIA (215) 676-4348

MIDWEST: MINNEAPOLIS (612) 854-6555 □ CHICAGO (312) 986-1414
CLEVELAND (216) 752-1030 □ DETROIT (313) 355-3510
PITTSBURGH (412) 343-4449

SOUTH: DALLAS (214) 233-7776 □ ATLANTA (404) 458-9360
HOUSTON (713) 622-0551 □ WASHINGTON, D.C. (703) 979-5500

WEST: SAN FRANCISCO (415) 398-0686 □ DENVER (303) 368-8844
LOS ANGELES (213) 479-6800

IN CANADA: CAE ELECTRONICS, LTD. (514) 341-8780

Now the
Hazeltine 2000 System

offers more versatility than ever with
the addition of the Hazeltine Impact Printer.

With an interface specifically designed to utilize the features of the Hazeltine 2000, the printer produces crisp, clear, printed output on the original and up to five copies at speeds to 120 characters per second. And it is quiet enough to put in your office.

Choose your configuration:

- ☐ Model 300 for speeds up to 300 baud.
- ☐ Model 1200 for speeds up to 1,200 baud.
- ☐ 80-, 118- or 120-column carriage width.
- ☐ Friction feed, pin feed or tractor feed.
- ☐ Horizontal tabulation.
- ☐ Vertical tabulation.

The Hazeltine 2000 System — now more powerful than ever: the CRT with unmatched Price/Performance; a "dual" tape cassette unit; and now a choice of thermal and IMPACT printers.

Just one more reason to select Hazeltine.

